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THE NAVAL OBSERVATORY

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THE NAVAL OBSERVATORY

NAVAL MIRRORS

BY LIEUTENANT COMMANDER R. P. GUILER, JR., U. S. NAVY

> Oh wad some power the giftie gie us,
> To see oursel's, as others see us!
>
> —BURNS.

HISTORY and the biographies of the masters of the art of war, contain voluminous data on "the training of officers." A great deal has been written on this subject by others. We admittedly cannot add anything of material value to what has already been said. We have the educational advantage of all their experiences, provided we take the trouble to study them, but can we say today that we have progressed? Can we improve over the methods in use during the periods of Nelson or Farragut?

Strategy, as does human nature, remains the same as in their day. Tactics, the methods employed in carrying out the strategy of a campaign, due to improvements in weapons and other facilities, have changed. In what respect have the methods in training officer character improved, and are we who are products of the modern school as "good" today as our forebears in the service one hundred years ago?

A child learns to read. Immediately there is open to him the knowledge acquired by intensive study, costly experiment and "hard knocks" through the ages down to the present. After a course of study in one of our universities, of which there are hundreds, he can speak learnedly and authoritatively of the customs, religions and sciences of the races that have peopled the earth since the beginning of history. He can build a Panama Canal, a Singer Building, a battleship, perform surgical operations

on the most delicate tissues—these and other undertakings equally difficult, which our grandparents would view as being little short of miracles. On the other hand, he may study the character, the genius—all the outstanding and desirable characteristics of those acclaimed in every tongue as being the great men in history—to what extent does he absorb these qualities for future application; their genius in leadership, their boldness in the initiative, their magnanimity in victory, their fortitude in adversity?

We, likewise, by a study of the masters, and by peace time experience, become proficient in the art of war, dependent on our various temperaments and capabilities, to the same general degree as do those in other professions. Some may become such authorities in strategy and tactics that they can demonstrate on the game board, that in some campaign, even the masters were in error. Others may become expert in ordnance, naval construction, engineering, statecraft and so on to an extent never before attained; but it doesn't follow that this same individual will have the essential characteristics of a great leader, even though he may have studied the character and methods of the master in a manner equally assiduous.

It is not intended to give the impression that no benefit may be derived from the study of the great characters, but to show by example that while their purely technical knowledge may be grasped in its entirety, and in many cases added to, those characteristics which distinguish great men above their fellows, particularly in our profession, cannot be inherited; neither may they be acquired except to a limited degree. They must come from within the individual.

Notwithstanding the fact that many of the great leaders, and I might safely say all the great leaders, of history have insisted that theirs was no heaven-sent gift, but was acquired through hard work, study and privations, a large percentage are prone to think otherwise and continue through laziness and indifference to underestimate their abilities. On the other hand, a few are inclined, through ignorance, to overestimate their capabilities, and for the same reason soon come to grief and a possible realization of the error of their ways, with subsequent reformation, or, in rare cases, continue blindly in their arrogance and bullheadedness.

Sayings of these great men might be quoted which would bear out their contention, but even in biblical days it was demonstrated by a parable that to some are given "ten talents," while others are not so richly endowed. All have a certain number of "talents," and it is possible that some of us, like the man in the parable, have "hidden them away in a napkin" for safe keeping.

We might ask ourselves occasionally: Are we exerting every endeavor in our training of officers to arouse in ourselves the latent "talents" of leadership, and to remove from the "napkin" and put to bearing interest the hidden "talents" of those undergoing training?

Some say that the Naval Academy training is the foundation of officer character. I regret to say that others, taking this statement for granted, damn the Naval Academy, with much fluency, as having failed in its mission. The Naval Academy needs no defense; its spirit and traditions are those of the service, and as such, will stand. In the days of King Solomon and before, it was an accepted axiom in architecture, that in the building of any edifice, be it temporal or spiritual, it must be founded upon rock. I should say rather, that the Naval Academy training is the rock upon which is founded officer character.

The foundation of officer character is not completely laid until some years after leaving the Naval Academy, and on the shoulders of its self-appointed critics in the service rests the responsibility of seeing that "dobe" bricks are not used in the construction of this foundation rather than the everlasting rocks of loyalty. What, then, is loyalty which comes but from within; how may we encourage its growth in ourselves and arouse it in those whom we are training? Loyalty has been defined in such completeness that I shall not add my poor contribution to the many excellent definitions extant. Instead, I shall endeavor to illustrate it: True loyalty, in my opinion, is exemplified by an officer having in a marked degree those qualities of character as outlined for a naval officer by John Paul Jones in his letter to the Marine Committee some one hundred seventy years ago. In our daily intercourse with our juniors as well as with our seniors, loyalty may be developed in ourselves and in those under training by careful and diligent attention to these fundamentals.

It is by no means enough that an officer of the Navy should be a capable mariner. He must be that, of course, but also a great deal more.

He should be, as well, a gentleman of liberal education, refined manner, punctilious courtesy, and the nicest sense of personal honor. He should not only be able to express himself clearly and with force in his own language both with tongue and pen, but he should be versed in French and Spanish. . . . He should be the soul of tact, patience, justice, firmness, and charity. No meritorious act of a subordinate should escape his attention or be left to pass without its reward, if even the reward be only one word of approval. Conversely, he should not be blind to a single fault in any subordinate, though at the same time he should be quick and unfailing to distinguish error from malice, thoughtlessness from incompetency, and well-meant shortcoming from heedless or stupid blunder. As he should be universal and impartial in his rewards and approval of merit, so should he be judicial and unbending in his punishment or reproof of misconduct. . . .

The contents of this letter should ever be before us; we do not see it often enough. A copy should occupy the first page of every book and publication used by naval officers. A copy should be posted in every stateroom on board ship; the first thing to greet our eyes in the morning, the last thing at night, a constant reminder of that perfect officer character which we should ever strive to emulate. The fundamentals of a great character are all there. As we gaze on this masterpiece of character portrayal by our first great naval officer, we should pause after each qualification and ask ourselves: Am I all this; could I not make some improvement? We are all honest enough to admit, to ourselves at least, wherein we fall short in each respect; are we conscientious enough, do we care enough to take the trouble to come to a realization of the worth-whileness of an endeavor to make up for our self-admitted shortcomings? Is there not a tendency among us to put the burden of proof on our juniors; to say that the officer undergoing training "should and shall" or "should not" this or that; what about us, who are directly responsible? Do we worry about the "shoulds and shall nots" that apply to us?

There is a War College axiom which, in substance, is as follows: "That there may be loyalty, there must be loyalty down as well as loyalty up." To begin at the beginning: A young ensign reports on board ship for duty. It is his first ship. He is young, impressionable. He arrives full of confidence and with a determination to make his influence felt on that vessel. He is capable in all respects to take command of the ship; to get underway on a moment's notice, and stand out of the harbor to give battle. His

is the courage, the initiative, the dashing bravery of Lawrence, Perry and Farragut combined. If I were twice my age, I should say: Glorious youth! It is well that he should be so. He has the "makings" of an excellent officer. With proper handling, it will soon be found that the foundation of his officer character has been laid with the rocks of loyalty. How is he received? Is there not a tendency in any military organization to initiate the newcomer with a bit of intimidation? Look back a few years and see how you were received and the impression it made on your—yes, on your very soul. Did it tend to cement together more firmly those rocks of loyalty in your foundation, or did your injured pride and crushed sensibilities give rise to a feeling of rebellion?

A few years ago, it was my privilege to be in the captain's cabin when the newly commissioned graduates of the Naval Academy reported for duty. After the usual official amenities, the captain asked if they were comfortably quartered and found everything satisfactory. To this, the spokesman for the group answered: "We haven't had a chance to get laundry lately and would like to know how to get some done right away." As the impropriety of this question dawned upon the other members of the party, a look of concern for impending serious consequences was evident in their faces.

What did the captain do in the face of this breach of official *lese majesté?* Did he throw himself into an intimidating rage? Did he give voice to some eloquent "deep sea" language and "get off" some snappy and sarcastic remarks relative to the Naval Academy training as administered to the present day generation? No! He did none of those things. With a twinkle in his eye, and in a manner as though the operation of the laundry was his chief duty and concern, he replied: "Why certainly, Mr.——; as soon as you get your baggage unpacked, I shall send my steward down to see that your laundry is properly looked out for." And he did, much to that steward's disgust.

I wasn't brought up in that school, and I left the cabin shaking my head. Here was food for thought. As I thought over the matter, I could not call to mind a single instance in which anybody, great or small, had ever said that kindly courteousness detracted from dignity or greatness. Some will say: "Yeah! great

idea! but that kind old father stuff doesn't get you anywhere." I thoroughly agree with them in principle, but was this "kind old father stuff?" I don't think so. I should say instead that it showed a study and intimate knowledge of youthful character. It also showed courtesy, and patience with the ignorance of inexperience; likewise leadership and loyalty down.

Those ensigns received the proper service perspective at the beginning. They were not disillusioned and therefore did not find it necessary to reconstruct their ideas and opinions.

The loyalty of our juniors is indeed a heart warming thing. How beautiful and pleasant it is to us to hear from a brother officer on another ship that our juniors have been "bragging" about us; their skipper, a "he sailor man" and a "bear" at the mast; their all seeing—all knowing but a-b-s-o-l-u-t-e-l-y SQUARE executive; their navigator who can smell his way through the thickest weather; their "hell to breakfast" first lieutenant, who, with his foghorn voice and a bar of soap makes the old U. S. S. *Flatiron* the cleanest, the happiest, the smartest ship in this, or any other navy; why the men of their own volition get up before "all hands" to scrub paintwork; and so on through all the heads of departments. That is an example of loyalty and ship spirit. Leadership is being developed on that vessel. Success is bound to follow in anything they undertake.

Some one has aptly said: "The hope of reward and the fear of punishment are the mainsprings of human action." Since it is natural for us to look both for rewards and punishments from "up," we are to a degree loyal up; while we may not be so desirous of reward, being human, we do not crave punishment. Frequently we criticise our seniors, the general plan, fleet organization and anything else that may come up pertaining to our profession. This may lead to dangerous practice. We do it thoughtlessly in the majority of cases, little realizing that both what we say and our manner of saying it may be misconstrued by those within hearing, and, carried to the other messes, it soon becomes general knowledge that we have little if any respect for the abilities, professional or otherwise, of our seniors. Nine chances out of ten the self-appointed critic knows little or nothing about the reasons for all these things which he is damning so unmercifully, neither is he in a position to know, and therefore

his criticisms are what might be termed as destructive. This is not "loyalty up" and should be discouraged. Conversely, constructive criticism is educational, and if censored and steered to proper channels, a great deal of good may result. When handled in this manner, it should be encouraged, since discussion teaches those under training to think, and in thinking, ideas will be brought out, many of which may be excellent and applicable.

It was stated that we look "up" for our rewards and punishments; are we not "overlooking a bet" in so doing. Take the gunnery officer for example. He may go aboard having the full confidence of the captain and the executive, both thinking that they have been extremely fortunate in having him, an officer who is expert in ballistics, fire control and all the technical branches of gunnery. They hear later from other ships (remember a bad reputation will travel even faster than a good one) that he is a slave driver, a petty nagger; that, due to a variety of causes, fancied or real, there is prevalent among the officers, a general feeling of discontentment, which as all well know, means discontentment throughout the ship. This gunnery officer may have been an excellent officer, fired with zeal and determination, and working late into the night in an endeavor to get results, but fails. I ask you, from whence cometh his reward?

In this connection, it seems pertinent to say that of all officers on shipboard taken individually, the gunnery officer probably has most effect on the ship. In his diversified duties, he is so intimately associated with practically all the officers and crew, that his example and bearing are bound to have considerable effect on the characters of his subordinates, not only for the time being, but in later years. If carefully analyzed, it will be seen that his example will have an effect throughout the service of the future since we learn largely by example, and our future acts are influenced to a considerable extent by our early impressions. Who hasn't at one time or another, when confronted by a perplexing problem, called to mind a gunnery officer of his passed-midshipman days, and said to himself: How would old "Judge Jones" have handled this situation? For these and other reasons, we should at all times pay particular attention to our bearing and actions, even to such seemingly small details as neatness of person and dress; being properly shaved at quarters; fresh linen; our

language and deportment; the respect for the rights of others in the mess. We grow testy as we grow older,—especially after ten days at sea, with the fresh fruit all gone and the eggs inclined to stick to the shell, and other "appalling hardships" that we have to "put up" with in seagoing these days—but what of it? We should remember to conduct ourselves at breakfast as though our order was not the only one in the pantry, since under these conditions, a molehill may readily assume mountain proportions.

Some one inadvertently told Noah, just before he reported on board the Ark for sea duty, "that as soon as he got on board, he would be placed in one of two classes: namely, a son-of-a-gun or a darned fool," and apparently strongly advised him to choose the former. From all accounts, he did not take this advice, and so far as is known, had a happy and efficient ship.

To this day, this advice is still being offered gratuitously and I regret to say that some of us give the impression that we have taken the advice literally and are endeavoring to put it into effect. Now so far as I am personally concerned, I don't care how mean one is, so long as he is consistent about it. I know just what to expect at all times, and consequently am prepared. It is the vacillating, nagging, good-one-minute-and-"bad"-the-next officer, who hides behind his official position; who will never give a direct decision, but says, "carry out the Regulations"; who, instead of saying, "all right, fix it!" or "you are suspended from duty for five days!" when something goes wrong, whines about the matter like a spoiled child over a broken toy. He is the type that "gets one's goat," makes for an unhappy and inefficient ship, drives the crew to desertion, and good officers to assuming a "don't give a darn" attitude. These are all human traits, we all have them, but they are not desirable traits. Like disease, they are always in our midst. We breathe them into our mental being in the same manner that we breathe disease germs which are floating about in the atmosphere, into our physical systems; germs lying in wait, dormant, ready to seize upon the weakened spots of the tissues or membranes, to fester, to breed and multiply, to weaken and possibly cause death, and, through infection and contagion, transmit the disease to others.

As we endeavor to keep the body in a healthy condition, so should we keep our minds clean and healthy, clean of the deadly

germs of littleness, cheapness, petty professional jealousies, abuse of authority and inconsistency, lest they, like the physical germs, seize upon the weak spots in our characters and by establishing a foothold, spread to all parts, and seriously weaken the structure. Let us purge our minds and personalities of these germs and counteract their insidious workings by cultivating the fighting corpuscles, those virtues and qualities of officer character as exemplified by the great men of the service who have made our traditions what they are; and like them establish our examples as beacons in the tortuous channels of a naval career so that those under training, those following the course set by us may evade the hidden rocks and shoals of inefficiency and disloyalty, and thus enhance our traditions and bring honor to them by virtue of having followed our examples.

I recently asked an officer of twenty-odd years' experience, what in his opinion was the worst fault a naval officer could have. He answered immediately: "The worst fault I can name is the fear of taking responsibility."

To delegate authority and retain responsibility is a virtue seemingly possessed but by the few. How strange this seems. Yesterday we commanded destroyers, battleships and fleets in the war zone. We showed courage, initiative and bravery in keeping with the best traditions of the service, ready and anxious to give battle with the enemy. Today, we shy at a scrap of paper with a few typewritten lines on it, written probably by an aide at best. Why is it? What makes our "bones turn to water" and our "spines to strings" at the mere sight of an admiral's flag on the horizon? Why do we one day "swallow a camel," and the next "strain at a gnat?" Does this arouse loyalty in those undergoing training?

At sea in column formation, the officer-of-the-deck turned wide in following the ship ahead through a ninety-degree turn. Immediately from the flagship came the signal: Who is officer of the deck? The signal being "official," it was referred to the captain, who dashed to the bridge to see what had happened. His arrival was simultaneous with that of the second signal demanding more insistently and peremptorily, if possible, the same information: *WHO IS OFFICER-OF-THE-DECK?* The captain, taking in the situation at a glance, directed the officer-of-

the-deck to reply: "The captain has the deck." Almost immediately the signal hoist, "Well done," with the ship's distinguishing pennant, was run up to the yardarm on the flagship. The captain with a "Humph! good work Mr. Jones" disappeared down the ladder and into the chart house. Draw your own inference; but wasn't that taking the responsibility; and wasn't it, too, loyalty down? This action on the part of the captain mattered little to him, but it relieved the officer-of-the-deck of a grave responsibility, and turned utter rout into glorious victory.

As we grow older in years and experience, we must be careful lest we lose our perspectives. We are inclined to remember the excellent watch officers of our day, their efficiency and initiative. It is possible that the watch officers of ten, fifteen, twenty years ago were better than those of today. It is also possible that they were not; it all depends. They did have more experience, however, and they should have been good. If our watch officers today are not as good as we think they should be, isn't it our fault? We are training them. Actual experience, is, of course, the best teacher, but with limited opportunity for gaining experience, we can simulate maneuvers and train them in the same manner that we train for target practices.

I have seen excellent results obtained by a captain who instructed his watch officers in the following manner: They met in the cabin with *General Signal Books,* and other publications which would be used in practice. Miniature ships and signal flags were used. An officer-of-the-deck was designated and a formation assumed on the board. A signal was then given. The officer-of-the-deck would carry out the maneuver, giving all orders as if actually on the bridge and underway. The other officers would criticize the evolution, and call attention to errors and omissions after completion. After a certain degree of proficiency was attained, casualties were introduced, such as: jammed steering gear, engine-room telegraph out of order, and so on. By this method, the captain got well acquainted with his officers; he learned exactly what to expect of them, and they of him. The same general idea in training was carried out by the executive for the purpose of teaching the watch officers their duties at anchor, honors, ship regulations, Navy Regulations, the customs of the service under various circumstances.

It is not considered necessary for the captain or executive actually to conduct these schools, but a lively interest shown by them in its workings aids considerably in progress. It is well not to get too enthusiastic over schools or conferences, lest we defeat our purpose. Both must be organized and not be allowed to become irksome. While in port, we all want to get ashore. Insofar as possible, recreation and leave should not be interfered with.

It is generally conceded that a successful officer is usually popular. Fortunately for most of us, however, it does not necessarily follow that in order to be successful, one *must* be what is known as the "popular officer." We are not all temperamentally fitted to be popular in the sense usually employed, but there is no reason why we should not be square. If we are square, and know that we are square, then we can say of public opinion what Farragut said of the torpedoes, and go ahead. Our popularity will take care of itself. Woe unto him who courteth popularity, when he is not psychologically fitted for the rôle. He might be likened unto "a man who diggeth a pit, and falleth himself therein."

Don't bluff! Nine times out of ten we bluff but ourselves, and on the tenth time, we bluff but the few. Let us be honest with ourselves; be men; be naval officers, not in words alone, but in our deeds and actions, and thus promote loyalty.

A few years ago an officer reported on board ship for duty as executive officer. He was a commander. He called the heads of departments together, and among other things, directed them to pass the word along that "he was absolutely without bowels."

We may rest assured that before twenty-four hours in a ship, we shall have been pretty well sized up, and it will be generally known whether or not we have "bowels of compassion." It will also be known whether or not we have "guts." Let us take heed, therefore, lest in attempting to exploit our strength we expose our weakness.

The good Lord, in his generosity, gave us among other things, personalities and tempers. He also gave us certain "conveniences for thinking" to be used as balance wheels or governors for these endowments. We cannot change our personalities entirely, but we can try, and in trying we shall find that we can improve them

to an extent such that those under training can at least live and work with us without harboring murderous thoughts. We can control our tempers, however, and our tempers have a great effect on our personalities. There are few who cannot control their tempers in their intercourse with seniors, no matter how stormy the interview may become, but how about our juniors? Isn't there a tendency in our make-up to throw off the governor belt and give our tempers full rein even in public? That in itself is bad enough, but to add injury to insult, we go to the wardroom, and advertise to the mess that Mr. So and So is, to say the least, inefficient, impertinent, bolshevistic and what not. Does this kind of treatment fill his bones with the marrow of loyalty? Why not call the Mr. So and So to our stateroom and talk the matter over with him; tell him in a firm but friendly manner wherein he is failing to come up to the standards we have set? The most sensitive cannot object to this, and it is bound to be effective, and will make him loyal to us.

The fleet is maneuvering as a unit. Captains of the several vessels are on their respective bridges naturally, and at the conn. During an evolution, the U. S. S. *Ironsides* misjudges in some respect and temporarily throws the formation out of order. What happens? From every flagship from the commander in chief's down to the division commander's, signals are flown. "Badly executed *Ironsides*." "Who-O-O is officer-of-the-deck?" "Your vessel has been badly handled!" In the majority of cases, these signals are sent "by direction." To what end? As captains in the Navy, commanding great battleships, is it leadership; is it efficiency; is it conducive to loyalty publicly to advertise in this fashion an error of judgment on our part to the entire Navy down through all ranks and ratings? Say what we may of the efficiency of the fleet under the iron hand of old Admiral Blank, when an "Irish pennant" anywhere about the ship meant ten days' suspension for the captain and officer-of-the-deck; say what we may of "them hally-con days" when "ships were wood and men were iron"; give any example we may choose; the fact remains that men, naval officers, anybody in fact having even a vestige of those great qualities of character, cannot be driven to loyalty. Obedience, yes; loyalty, never.

We know when we are wrong even before anybody else knows;

it was unintentional of course, and we are sorry, and naturally will do our best to prevent its recurrence. If we as officers in any rank or capacity have not the faculty of realizing that we are in error, and admitting it, we have no place in the service, and should be removed. It would seem, therefore, that these signals of reproof or criticism might well be expunged from the signal books. They are unnecessary and useless; a detriment to the growth of loyalty.

Are we to understand that there are those among us who have not the moral courage, the "guts" if you will, calmly to tell those undergoing training, "to their faces" that they are not making good; that they are failures as officers? Must we be intoxicated with anger in order to have the courage to tell them the truth about themselves? Why should it be necessary for any officer to go to the trouble and expense of a trip to the Navy Department to find out what we on his own ship think of him? An officer may be getting along finely in his own opinion. Imagine the "jolt" when six months later he finds that he is being rated between a 2.5 and a 3.0. Think of the progress he might have made if the gunnery officer, for instance, had reached out a helping hand, and set him straight. Think of the loyalty he missed.

It should be a rule, and as a matter of fact it should be Navy Regulations, for reporting seniors to show to all officers their fitness reports before forwarding them to the Department. Then we shall know at least every six months how we stand. All of us at the slightest excuse "holler" about a square deal. We want to be treated like grown men. We don't want to be treated like children, neither do we want to be "soft soaped" all the time, but a hint at praise from our immediate seniors works wonders in our systems of self esteem. Let us remember that in these respects we too are seniors. Let us conduct ourselves toward our juniors, those whom we are training, in a manner which we expect from our seniors, those who are training us, and thus secure loyalty unto ourselves by passing this "square deal" along.

After all, ours is a serious profession; serious in that upon us rests the security of the nation. We are the first line of defense against aggression by scheming foreign powers, the protectors of our commerce in foreign seas, and let us never forget that we are the representatives by which our great country is judged wherever we may be.

We are little known at home, and understood less. We are heroes today, rascals tomorrow. Our daily lives are beset with difficulties, disappointments, ingratitude and disillusionments. We have no identification in any community, and the scenes of our childhood know us no more. We are wanderers, moving about the seven seas looking after our country's business and upholding her dignity among the nations of the earth. We receive little reward, as the world measures; sufficient only to maintain ourselves modestly, and by denial, to give our children a precarious education. We may possibly for a time occupy a temporary seat in the high places, a target for the darts of suspicion, distrust and envy; then retire, old before our time, broken in health possibly, to a life of uncongenial inactivity in a friendless community, there to live out the few years remaining us, "unhonored and unsung" save by the few.

We know these things, we understand them, we accept them. Let us, therefore, not look at all times on the serious side of life; life is too serious at best. Let us look rather on the bright side of things and let the warm rays of cheerfulness ever emanate from us, and the spirit of loyalty pervade our souls; let us set a good example in patriotism to our juniors, to our seniors, to ourselves; we are all undergoing training! Let us get close to them, learn to laugh with them, learn to cry with them, and make them know that, should occasion arise, we will not hesitate to die with them. Then we have loyalty up and loyalty down! Then we have loyalty within ourselves! Then we have leadership; and above all things, we have our priceless reward: We have the self-satisfaction of duty well done; and those coming after will say of some of us: HE added to the traditions, to the Spirit of the Service.

A LEGAL PROBLEM ON BOARD SHIP

By Lieutenant Commander J. H. Taylor, U. S. Navy

ONE of the most confusing legal problems on board ship arises when a man is discovered in possession of clothing or other property belonging to one of his shipmates or in possession of government property without proper authority. To some extent the confusion has been abated but there remains considerable difficulty in the matter in some quarters and it is proposed to explain these cases as fully as may be and suggest a way out of the difficulty.

There are, of course, a few clear cases of theft, with clear evidence available, and, there being little or no difficulty with them, no discussion of them is needed. There are also a few similarly clear cases of the offense of receiving property known to have been stolen which are more difficult and at best it is usually more difficult to secure sufficient evidence with which to prove the facts in the case.

All officers should understand the essential elements of the offense of "receiving property known to have been stolen," a specimen specification for which is set forth in Section 300, *Naval Courts and Boards*, 1923, and also the evidence necessary to justify a court martial in finding such a specification proved. In *Kirby vs. U. S.*, 174 U. S. 47, (1898), the court said that it was necessary to prove beyond a reasonable doubt (1) that the property described in the indictment had been in fact stolen, (2) that the defendant received it into his possession, and (3) that he received it with knowledge that it had been stolen.

(a) The fact of the theft must be established by direct proof, brought out in the trial of the accused, independently of the record of any other trial in which some one else has been convicted for the theft. (174 U. S. 47). To establish a *prima facie* case of theft in connection with this offense all that need be proved is (1) the *corpus delicti* of the theft: e. g., that it had been committed, which is sufficiently established by proof that the article was missing under such circumstances as to indicate a theft, and (2) that the theft was committed by some one other than the accused. This latter is necessary because theft and receiving stolen

property are separate and distinct offenses (*Court-Martial Order* 114. 1918, page 25), and consequently proof of the one will not support an allegation of the other.

In *People vs. Moloney* (Mich.) 71 N. W. 866, it was held that there was sufficient evidence that the goods had been taken feloniously when the owner testified that his barber shop had been broken open during the night and the property in question was gone the next morning. In naval cases a *prima facie* case of theft or larceny (the two words being identical in meaning) has been made out when the true owner of the article testifies that he had left the article in a place of safety, such as his locker, from which he would be the only person to have the right to remove it, and that the article was gone the next time he went to get it. To establish a *prima facie* case that the accused was not himself the original thief it is not necessary to show positively that some one else was the thief, but only that, under all the circumstances of the case, it was improbable that the accused could have been the original taker from the possession of the true owner.

(b) To be guilty of receiving, the accused must have come into possession. An article is considered to be in the possession of a person in the naval service whenever it is within a place of which that person has the exclusive use, such as a man's locker, hammock or ditty-box. Such possession, however, need not necessarily be manual: e. g., within the physical possession of the accused himself, so long as the article is within the actual possession of an agent or servant of the accused, so that the accused has control through the instrumentality of such agent. But in most cases arising in the naval service, the article is discovered in the possession of the accused himself, and such possession, in and of itself, establishes a *prima facie* case that the accused willingly received the article into his possession, this *prima facie* case being open to rebuttal by evidence that the article was placed in the accused's possession without his knowledge or consent.

By the weight of authority it is immaterial from whom the stolen article is received by the accused, hence it is not necessary that the goods be received from the thief, so long as the goods still remain stolen goods at the time of the accused's receiving. This means that they must not have again gotten into the hands of the true owner between the time of the original theft and that of the accused's receiving, and have been in the interval again sent out into the world under the true owner's authority. An illustration of this is where the thief had mailed stamps stolen from the government to the accused, but notified a postmaster who took them out of the mails. If the postmaster later redeposits the stamps in the mail and the accused thereby receives them the latter cannot be convicted of receiving stolen property, because the character of the stamps as stolen property, in respect to all subsequent receivers, terminated at the time the postmaster, the agent of the government, which owned the stamps, reclaimed them from the thief, (*U. S. vs. DeBare*, (1875), Fed. Cas. No. 14935).

(c) The point most difficult of proof is that the accused knew that the goods were stolen at the time he received them, for it is not enough, under a specification based on a statute such as Article 288 of the *Criminal Code*, upon which this offense is based, that the accused has merely *retained* goods in his possession which he has ignorantly received but has later become aware were stolen, because the statute punishes the felonious *receiving* only and does not apply to a subsequent unlawful possession. Furthermore, the federal courts hold that it is not enough that the circumstances were such that they would lead a reasonable and prudent man to believe that the goods were stolen property at the time they were received, for

"The test of the criminality of a defendant is not whether he has or has not acted as a reasonable and prudent person would act, but whether he knew that the property was stolen. The fact that he acquired possession under circumstances which a jury might believe would indicate to a reasonable and prudent man that the property was stolen would doubtless be an important element in determining whether or not a defendant did in fact have that knowledge. But it was not proper to charge the jury that this element alone would justify the conclusion that such knowledge was shown, unless from it the jury was satisfied that the defendant actually knew the property was stolen. It might have appeared to the jury that the defendant was not a reasonable or prudent person, or that in a given instance he acted unwisely, unreasonably, imprudently, or carelessly, but not with criminal intent. Under such circumstances he could not be convicted." (*Pounds vs. U. S.*, (1920), 265 Fed. Rep. 242.)

Nor is there any presumption of guilty knowledge on the part of the accused from the mere fact that he was in possession of the stolen goods, but some evidence as to his guilty knowledge must be introduced. (22 L. R. A. (N. S.) 840). The following evidence *re* guilty knowledge has been held sufficient to support conviction in adjudged American cases:

(1) Testimony of an accomplice as to the accused's knowledge, plus the latter's possession of the stolen goods.

(2) Denial by accused of possession of the goods just before they are found in his possession.

(3) Purchase of the goods at considerably below their market value, in connection with the purchase being made at an unusual hour of the night, from an unknown person, who arrived by an unaccustomed route.

(4) Possession of the goods shortly after the larceny, in connection with the defendant's attempt to prevent the officers from entering the room in which the goods were found, it being held in this case, (*Goldstein vs. People*, 82 N. Y. 231) "that the possession of stolen goods, immediately after the larceny, if under peculiar and suspicious circumstances, where there is evidence tending to show that some other person or persons stole the property, such possession, not being satisfactorily explained, would warrant a conviction."

(5) Failure to make inquiry, when the circumstances were such as to arouse suspicion, for fear that he, the accused, would learn that the goods had been stolen.

From the above it would seem that the best rule for use of naval courts martial is that a court is justified (though not required so to do) in drawing the inference of guilty knowledge on the part of the accused when, in connection with proof of the accused's possession and proof of the fact that the goods were actually stolen at the time of his receiving them, additional evidence is offered that,

(1) The accused bought the article at a price so low that it would tend to arouse suspicion in the mind of the ordinary man as to the genuineness of the seller's title, accompanied by lack of any inquiry on the part of the accused;

(2) The article was plainly marked with the name of a man other than the seller and that the accused made no inquiry regarding such marking;

(3) The accused denied receipt or possession of the article, which is shortly afterwards found in his possession, coupled with the failure of the accused to rebut this *prima facie* case of receiving.

(4) The transfer to the accused was made furtively, at a strange hour of the night, or in an unusual place, not ordinarily frequented by the parties to the transaction;

(5) The accused and the thief were intimates;

(6) A notice of the losing of the article had been read off at quarters, posted on the bulletin board or had become common knowledge in any other way to such an extent that the accused's knowledge, together with that of the rest of the crew, could be inferred beyond a reasonable doubt.

(7) The accused had concealed his possession, or had himself quickly gotten rid of the article in a secret manner, as by taking it ashore and pawning it.

(8) Any other similar suspicious circumstances existing which lead the court to believe that the accused knew the character of the goods at the time he received them.

There is a further element not discussed in *Kirby vs. U. S. supra,* necessary to be proved in this, as in every other criminal case. This is the criminal intent with which the act was done, for unless the goods are received with an intent to defraud the rightful owner thereof, no offense has been committed. (34 Cyc. 416.) Although the law does not presume the existence of a fraudulent intent from the fact that a party received stolen property with knowledge of the theft (*Goldstein vs. State,* 1902, 66 Neb. 312), yet, since intent is never a matter of direct proof, in

the absence of a plea of guilty, but must be proved by the circumstances, it may very well be that the circumstances already established: e.g., that the accused had received into his possession stolen goods, plus some evidence to indicate his knowledge of the character of the goods, accompanied by his failure to return them to the true owner prior to their discovery in his possession, will establish a *prima facie* case for the prosecution in respect to the accused's fraudulent intent. But if the defense proves that the accused received the goods for a legitimate purpose, such as to return the goods to the true owner without holding for reward, the crime is not committed because no criminal intent has been established.

There is a general rule of property law to the effect that the first finder of lost property has a better right to it than any except the rightful owner. As to larceny by a finder, Section 232, *Naval Courts and Boards*, 1923, states:

"When a person finds property he has a right to take it and examine it. If the circumstances give him no clew to the ownership he can rightfully appropriate it, and this act or a subsequent refusal to give it up to the owner will not be larceny as there is no trespass in the taking. If the circumstances do give him such a clew he can rightfully assume possession for the owner, and a subsequent change of intent and an appropriation of the property would not be larceny, but where he intends to appropriate it at the time he assumes possession he is guilty of larceny, and none the less so if he intends to return it in the event that a reward is given."

And in *Hocheimer's Criminal Law*, (p. 69), it is stated:

"Again, in the case of lost goods, the finder does not incur the guilt of larceny by a conversion thereof, unless, at the time of taking, from marks on the article, by reason of surrounding circumstances, or otherwise, he has knowledge of the ownership or reason to believe that the thing has not been lost, but merely misplaced or intentionally deposited where found." (Citing *Griggs vs. State*, 58 Ala. 425; *State vs. Dean*, 49 Iowa 73; *Tanner vs. Commonwealth*, 14 Gratt (Va.) 635).

Inasmuch as all personal clothing of men in the naval service is required to be plainly marked there will be a clear clew as to the ownership of found clothing (or bedding) in the great majority of cases. Government property is frequently of a distinctive character sufficient to identify it as such as convincingly as if it were actually marked. And in the class of cases where a man fails to return such marked articles within a reasonable

time after finding them he may properly be found guilty of larceny. The accused may claim that he found the article and took it with the intention of returning it to the owner and that he changed his mind later and decided to keep it, but the court may infer what was in the mind of the accused from his acts and from the surrounding circumstances.

In a goodly number of cases, however, very little information can be obtained as to the circumstances surrounding the matter except that the accused was found in the possession of clothing or property of another or of the government and that the property did not rightfully belong to him. In case the articles were marked a part of the difficulty of proving the offense of larceny is overcome as explained above but there remains the difficulty of proving the criminal intent of the accused. Although the accused may have a bad record and a practical certainty exists that he stole or appropriated the articles upon finding them it is exceedingly difficult to present sufficient evidence to convict him before a court-martial. The problem is to prepare a specification which will state an offense, being in possession of sufficient evidence to prove, beyond a reasonable doubt, the charge specified.

Naval Courts and Boards, 1917, attacked the problem directly and on page 120 thereof the following specimen specification appeared:

"In that ....., landsman for electrician, U. S. Navy, did, on or about December 21, 1915, on board the receiving ship at ....., ..., while serving on board said ship, unlawfully have in his possession one gold watch, of the value of about thirty-five ($35), dollars, and one gold chain, of the value of about seven ($7) dollars, both the property of ....., seaman, U. S. Navy, and eight ($8) dollars in United States money, the property of ....., electrician third class, U. S. Navy."

This specification satisfactorily covered the situation which it was intended to meet, but *was in fact illegal* and was stricken from the Manual by changes in *Naval Courts and Boards No. 3,* which substituted therefor a specimen specification charging the receiving of property known to have been stolen. The mere substitution of the one charge for the other was somewhat misleading and as a result many officers attempted to use the older specification for which evidence was much less difficult to obtain, with the result that the cases were disapproved.

The reason for such attempted use lay in failure to comprehend the underlying reason for the illegality of the old specification. A specification, basically, is used for setting forth in clear language exactly wherein the acts of the accused constitute an offense, that is, wherein they are against the laws of the Navy or of the land. Where the specification merely stated that the accused unlawfully had articles belonging to another in his possession it failed to contain its basic requirement. There are so many ways in which one may unlawfully be in possession of the property of another that it is necessary to set forth the facts constituting such unlawfulness.

The disapproval of such cases was couched in such language as to be of little assistance and was about as follows:

"It is the opinion of the reviewing authority that the specification is insufficient in that it fails to state an offense against the accused as set forth in *Court-Martial Order* 237, 1919, page 15. The specimen specification on page 120 of *Naval Courts and Boards*, 1917, which was followed in this case has been corrected by change Number 3."

Thereafter the words "feloniously" and "wilfully" were sometimes, by various convening authorities, substituted for the word "unlawfully" but were open to substantially similar objections and those cases were disapproved.

Upon attempting to use the specification alleging the possession of property known to have been stolen the results reached were frequently about as follows:

"1. In reviewing the summary court-martial in the case of .... it is noted that the specification alleges in effect that the accused wilfully received stolen property ..... 'Then and there well knowing that said article to have been feloniously stolen' x x x. The court found the words quoted 'not proved.'

"2. In the opinion of the reviewing authority the specification as found proved is insufficient to state an offense against the accused. Knowledge of the stolen character of the goods is a necessary ingredient to the offense of 'possession of property known to have been stolen.'

"3. In view of the above x x x disapproved."

Later disapprovals, however, contained assistance in about the following words:

"If the accused had violated a lawful order of his commanding officer by having the property of another person in his possession the specification should have alleged that fact."

Care must be taken in drawing up such an order as will meet

the requirements of circumstances. A sample order which, it is believed, will cover the majority of cases is quoted below:

U. S. S.———
Jan.——1924.

Ship's General Order No.—

1. Article 122 (2), *Naval Regulations*, 1920 is quoted below for the information and guidance of all enlisted men on board:

"The clothes, arms, military outfits, and accouterments furnished by the United States to an enlisted person in the Navy or Marine Corps, or required by such persons as a part of their prescribed uniforms or outfits, shall not be sold, bartered, exchanged, pledged, loaned, or given away, except by competent authority therefor."

2. When a man desires to obtain from another, any article of clothing or bedding, he must secure authority from his division officer, who, if the transaction is authorized will cause the article so procured to be stamped with the official "D. C." stamp, and remarked with the name of the new owner. This must be done if the article is received as a gift, bartered, exchanged or bought.

3. All men are forbidden to have clothing or bedding belonging to another person in the naval service in their possession unless by proper authority as described above and all men are forbidden to lend or give away clothing or bedding to others except in the same manner.

4. Whenever clothing, bedding, or other articles or property are found, or otherwise come into the possession of any man who is not the owner thereof he will, unless proper authority has been obtained for retaining such property, immediately hand over such property to his divisional officer or to the chief police petty officer for restoration to the rightful owner, and failure to do so will subject the person so failing to disciplinary action. This includes property of the United States which comes into the possession of any person without proper authority therefor. Articles which are not claimed by their rightful owners will be returned to the finder.

_____
Captain, U. S. Navy.
Commanding
U. S. S.———

I have read the above order and have had its meaning explained to me so that I understand it.

_____, _____
Name Rate.

This order should be published to all hands, steps taken to see the new men coming on board ship are acquainted with the order, and, on change of commanding officers, that the order is republished. (Else, in the cases of men coming on board, the order will not have been issued by one in authority over the accused.) The gist of the order is, "If you come into the possession of anything which does not rightfully belong to you turn it over to the chief police petty officer or to your division officer immediately in order that it may be restored to its owner promptly."

In view of the legal rights of a finder of lost property there is a possibility of doubt relative to the legality of an order to give up immediately such articles of personal property as may be owned by enlisted men but which are not part of the military outfit or equipment and are ordinarily unmarked. There is little doubt of the military necessity for prompt return of all articles of equipment, and in view of the situation created in the comparatively confined quarters on board ship by suspicion of a thief in the vicinity there is comparatively little doubt of the military advisability of an order conducive to the prompt return of *any* article misplaced by the rightful owner. There is also to be considered the avoidance of confusion by concentrating all articles found in one or two places in order that the rightful owner may know where to look for them instead of conducting an individual search throughout the ship. It would, therefore, be proper and in the interest of good order and discipline on board ship to issue such an order, which, if it violates none of the inherent rights of individuals, would be a lawful order. Deliberate violation of such an order, issued with a view to the military necessities mentioned above, could hardly fail directly to be prejudicial to good order and discipline in the ship.

While *Naval Courts and Boards*, 1920, does not contain a sample specification which appears to meet the situation exactly, it must be borne in mind that no such publication could contain sample specifications to meet all possible contingencies and that those included are guides, although it is better to follow them exactly, where applicable, in order to avoid error.

It would be erroneous to lay a specification alleging violation of the above order under the charge of "Disobeying the lawful

order of his superior officer." (Article 4, paragraph 2, A. G. N.) Section 220, N. C. B., 1920, reads in part as follows:

"Failure to comply with the Naval Regulations or with general or local orders is not an offense under this charge ('Disobeying the lawful order of his superior officer') but under the 8th A. G. N., paragraph 20, ('Violation of an order or regulation issued by the Secretary of the Navy') or under the general charge."

This means the charge "Conduct to the prejudice of good order and discipline" as provided for by article 22, A. G. N. (See Section 272, N. C. B. 1923.) A specification to cover the situation might read as follows:

"In that ....., seaman second class, U. S. Navy, did, on or about ....., 1924, on board the U. S. S. ....., while serving on board said ship, in violation of a lawful order of his commanding officer, have in his possession without permission from proper authority, one undershirt of the value of about thirty-five cents, the property of ....., seaman second class, U. S. Navy."

It might be practicable to include the order quoted above as a part of the ship or station regulations and then the specification might allege "in violation of a lawful ship's regulation" (Not "ship's order" as the ship cannot give an order) instead of "in violation of a lawful order of his commanding officer" but it would be less simple to place the ship's regulation in evidence and for that and other reasons it is believed that the procedure outlined above is preferable. Of course no charge, as such, is set forth in summary and deck courts but it is none the less necesary that the specifications be laid within some proper charge.

Proceedings upon the above specification involve, substantially, the admission of the original order in evidence (a copy certified being attached to the record), evidence of publication to the accused (within reasonable certainty) and evidence that the accused retained the property in his possession for a time longer than that involved in the word "immediately." All of these necessary elements are comparatively easy to prove.

SOME COLORFUL HAITIAN HISTORY

By Commander C. S. Baker (SC), U. S. Navy

IF, AS MANY are prone to believe, nature has a controlling effect upon mankind, the turbulence and vividness of the elements in the tropical West Indies must have left a lasting imprint upon native character. And it is hard to believe that, as a direct consequence, this molding of character by constant association with the tropics could do aught else than leave a permanent mold upon political events.

Conditions in Haiti have never been stable and for years the politics of that mountainous republic were chaotic. During 1914, the country was blessed with two presidents, while since 1911 six chief executives were given an opportunity of making names for themselves in the history of their country. In fact, since 1804, Haiti had been ruled—no other word applies—by two emperors, one king and twenty-two presidents. They were shot, deposed, committed suicide, or were exiled, leaving less than half a dozen to retire peacefully from their turbulent country. It was a country where, within the memory of this generation, Vaudoux rites had possibly been held; where cannibalism in terrifying form may have existed; where children were reported as drugged into unconsciousness, buried, disinterred and revived in order to appease the appetites of the Vaudoux worshippers clamoring for human flesh. This was a country where the constitution was changed capriciously with almost every new administration; where individual liberty was guaranteed, freedom of the press assured, the right of free speech made constitutional, and the secrecy of letters forever inviolable—on paper. The constitution, as existing in 1915, however, was more candid. It was written at Gonaives, their city of independence, in the year 1899, but it did not guarantee individual liberty, and freedom of speech and of the press was restricted.

The country was discovered by Columbus, settled by the Spaniards, depopulated by them in their lust for gold, and then

conquered by French buccaneers, the precursors of the French colony, who repopulated the island with negroes imported from western Africa. Later, to the intolerable slavery to which the blacks and colored alike were submitted, and the growing unrest of the white planters, there came, like a sudden ray of light, the American and French revolutions. Signal successes and the freedom of the North American states sank deeply into the consciousness of the oppressed people of Haiti. Spurred by their wrongs and encouraged by a decree of the French constituent assembly which freed all Haitians born of free parents, but which the insular administration had refused to execute, the slaves, led by the negro Toussaint l'Ouverture, rose against the whites. In response to the savagery and fearsome oppressive measures of the French, the negroes retaliated. The planters they sawed in two, roasted and skinned alive, and on occasions drank their blood mixed with rum.

Napoleon sent General Le Clerc and later Rochambeau with 30,000 French troops to subjugate the negroes. After almost complete control had been secured, yellow fever attacked the white troops, who died like flies. Half of their expeditionary forces succumbed to the ravages of that dread disease. The balance, weakened from sickness and loss of morale, finally capitulated to the negroes. Then came Haitian independence, followed almost immediately by the massacre of the French colonists by the negro, Dessalines, the most revolting man in all Haitian history. Later was witnessed the despotism of King Christophe, another black, the wholesale murders under Emperor Soulouque, the fearful atrocities and massacres perpetrated in 1883 by the negresses who were the fanatical and devoted followers of President Solomon. Following these nauseating events, history records the rapid succession of presidents and the unpleasant political upheavals preceding and attending the several administrations.

Could history afford any better example of disorder and tragedy? Early in 1915, several reports of revolutionary activities in the Black Republic caused uneasiness in our State Department. It was not unnatural, therefore, that our administration should become again deeply interested in the affairs of this small neighbor of ours and that the Navy Department should

dispatch thither a squadron under the command of Rear Admiral Caperton. Upon his arrival, it was ascertained that Vilbrun Guillaume Sam, a delegate from the Department of the North, was already heading a revolution against President Davilmar Theodore, who had been chief magistrate for less than three months. Guillaume Sam was following the precedent many times used in the Black Republic. The Department of the North had consistently given birth to Haitian revolutions, And so terrible had this custom become that for many years, King Christophe kept it separated from the rest of his realm. Much of the money collected from taxes laid on exported coffee flowed into the banks of Cape Haitien, the metropolis of that department. When once the revolutionists had taken possession of this city, it became comparatively easy to secure funds, and with them the support of the dissatisfied. And as the seat of the government, Port au Prince, was situated in another department to the southward, Haitians in need of cash made every effort to prevent government monies from reaching the capital. And so, in January, 1915, we find a thousand revolutionists appearing outside the walls of Cape Haitien. Guillaume presumably engineered this demonstration. He immediately called a meeting of the citizens, explained that though he was the national representative from that state, he was unable to defend the town, and immediately announced his candidacy to the presidency, whereupon the revolutionists swore allegiance to him. He took command of the forces, and with true Haitian eloquence began the issue of manifestoes. It is related that the American admiral, anxious to prevent bloodshed, decided to call upon Guillaume Sam and represent to him our Government's wish for the preservation of law and order in the island. As the Americans approached the palace at Cape Haitien, they were met by a tatter-demalion soldier, while inside the entrance appeared a gorgeously arrayed negro, who directed the visitors through an anteroom and up the stairs. The gorgeously bedecked attendant suddenly disappeared only to appear again, still radiant, at the head of the steps. There he took the officers' caps and gloves and ushered them into a large reception room, saying the general would be pleased to see them in a few minutes. The resplendent flunky then departed. Hanging on one of the walls of the room

was a large portrait. To the officers, it seemed familiar though no one could exactly determine the identity of the subject. While they were gazing at his indistinctly familiar face, General Guillaume Sam appeared. Greatly to the surprise of the Americans, he was none other than the bell hop; but this time, he had discarded his other coat for a more elaborate one, while an enormous sword clanked at his heels. A glance at the portrait on the wall convinced the officers. It was Guillaume. That was their first introduction to the next president of the Black Republic.

Soon thereafter, the general, much encouraged by the Haitians from the north, and in vivid French, proclaimed himself Chief of the Executive Power, thanking the people for their sound judgment in choosing him and for the mad cheering and the beating of drums which greeted his entrance to the city. The Haitian government, however, was not inactive, for it prepared half-heartedly to go through the formalities of a defensive campaign and declared that Cape Haitien was in a state of blockade. The Haitian navy, consisting of two gunboats, was ordered to carry out the orders of the blockade. The navy, however, was without either coal or funds, and consequently unable to do the bidding of its president. This sorry state of affairs soon convinced Haitian governmental officials that measures looking toward the improvement of its status must at once be adopted. It was not considered feasible, in view of the presence of the American admiral, to commandeer greatly needed American coal in the harbor, so the Haitians conceived a scheme for obtaining necessary funds. Local officials, actuated by these urgent national needs, attempted to transfer from the National Bank of Haiti to some other depository, gold which they claimed belonged to their government. This solution would have been a most satisfactory one, had the officials been permitted to carry it out, for in those days, possession was nine-tenths of the law, and it was only a question of the stronger man getting the funds. Like a tropical storm this scheme came and went suddenly, and was heard of no more.

The government proceeded with its usual languor, and occasional encounters between governmental and revolutionary troops took place at localities where for years it had been customary for the opposing forces to meet.

Early in February, Guillaume, at the head of a thousand men, approached the capital. Consternation reigned in the city. It looked for awhile as though there would not be enough foreign consulates to hold the people desiring to take refuge within their sacred precincts. This excellent custom originated by the inclusion in the Haitian constitution of a clause declaring the right of asylum in legations and consulates to be sacred and inviolable. Consequently most Haitians of note immediately set out for consulates when in fancied or real personal danger. Trouble broke out in the capital. One of the ministers, Bobo, announced a new revolution, while Guillaume Sam slowly approached the seat of government. Many proposals were made to the American admiral, that he intervene, or set up some form of government in order to prevent the entry into the city of General Guillaume Sam. The better class of Haitians all regretted the admiral's refusal to support any man or political party. The Haitians remembered only too well that Guillaume Sam had served one year of a life sentence meted out to him for falsifying governmental financial statements, and causing a large over-issue of bonds, which accidentally went into his own pockets. And with him marched many of the dreaded and lawless Cacos from the mountains. Later in the month, General Sam entered the town of St. Marc, not far from the capital. Many of the government troops attempted to swim out to the gunboat, *Nord Alexis,* then in the harbor. With them was drowned Mon Plaisir, minister of the interior, who had courageously stayed with his troops. Some one of his own followers, in order to assure himself that the minister should not escape, took pains to stab him before he was drowned. His disappearance from national politics, however, was a great relief to many. He had been a much feared minister in the cabinet of the president, Davilmar Theodore. Mr. Leger, the able native diplomat and writer, never left the grounds of his residence while Davilmar was in power. He feared the minister. Actuated by a similar and laudable desire, Charles Zamor sought asylum in the French legation and clung to it throughout the administration of Davilmar, as well as that of the succeeding executive.

The government forces who were not killed or drowned, immediately became revolutionists. That was a good custom for it

insured, at least for the time being, much needed money and clothes. Guillaume thereupon decided to pay off his victorious troops. But as he had no funds wherewith to meet this acknowledged obligation, he undertook to convince the German consular agent at St. Marc to part with certain custom receipts which, as a Haitian banker, and the agent of the Haitian government, he possessed. Though unsuccessful with the German, he raised the money elsewhere.

On Washington's birthday, the revolutionary forces entered Port au Prince, and a salute was fired by the water front battery and by the *Pacifique,* which but a few hours before had been manned by government sympathizers. And Davilmar Theodore, accompanied by his family and his minister, boarded a steamship and set sail from Haiti. So with the publication of a proclamation announcing the success of the several armies under his command, Guillaume walked into the presidential palace. By comparison, he was quiet and unassuming in this, for in 1849, when Emperor Soulouque proclaimed himself emperor, he paid $160,000 for his crown and personal adornment, created four princes, a half-hundred dukes and marquises, counts and barons without number, a Duke of Marmalade and one of Limonade—all to appease his victorious soldiers.

From February until June of that year, a quiet which both precedes and follows storms, prevailed. Our administration was then deeply occupied with the affairs of Mexico, and most of the vessels originally in San Domingan and Haitian waters were lying in Mexican ports of the Gulf of Mexico watching the events which marked the early days of the Carranza administration.

Washington was, therefore, taken by surprise when late in June, 1915, word was received that French marines had been landed at Cape Haitien. To those familiar with the history of the Black Republic, the landing of French marines could mean but one thing. Admiral Caperton was then again dispatched to Cape Haitien to report upon conditions in that city and to see that necessary and adequate measures were taken for the protection of foreign lives and property. Once again, therefore, American naval forces anchored off Cape Haitien, and saw yet another time the familiar outlines of Sans Souci, the famous castle and

impregnable stronghold, erected at the cost of the lives of thousands of blacks toiling ceaselessly and under duress, that King Christophe might build for himself a veritable Gibraltar, proof against French attack, for he had feared their wrath, and justly so, since the French islanders had but recently been exterminated by the ruthless slaves.

Ashore, there had been gathered another revolutionary force, but this time under the command of Dr. Rosalvo Bobo, ex-minister of the interior under President Davilmar. This gentleman was a red-headed mulatto possessing the fiery declamatory powers so frequently found in the tropics. His persuasiveness had brought round him a considerable following, all anxious to have their share in the running of the government. This movement of General Bobo's gained such impetus that it was not long before the government felt it necessary to announce the sending of 20,000 troops to quell the insurrection. To that end, the Haitian administration dispatched several thousand troops under General Blot. This worthy was promised a portfolio of minister of the interior, in case he proved successful in his enterprise. Fighting of a desultory nature took place in and around Cape Haitien and throughout the north or Caco country. Neither side gained any particular advantage though Bobo was master of any situation involving the issuing of proclamations. The one which at that time created the greatest impression, written in vivid French, contained the following extract:

"Today, as in 1910, when the MacDonald affair cost me two and a half months in irons and eleven months in exile, I desire to explain to you my sentiments towards Americans. There is no people whose genius and industrial activity I admire more than theirs. To introduce into our country its industries, its capital, its methods of work—is one of my most ardent and constant dreams. But to turn over to them our custom houses and our finances, to put ourselves under their tutelage, never, never, NEVER." (An illuminating exhibition of Haitian turn of mind.) He next invited attention to the iron collar the United States had placed upon the neck of Santo Domingo, where neither the president, minister, nor anyone could think without permission from the American Minister. "This lot the government of Guillaume accepts or is going to accept for us. The revolution which I have undertaken has for its aim the prevention of this excess of disgrace.

"To arms, citizens and soldiers, the most sacred duty—that of saving your country—calls you. Honor and success await you."

And this vivid proclamation was signed in a characteristic way —"Rosalvo Bobo, Graduate of the Faculties of Law and Medicine of Paris, former Envoy Extraordinary to Santo Domingo."

About the middle of July, however, government troops gained a distinct advantage just south of Cape Haitien, while at Qartier Morin, with the capture of one gun and a number of women, revolutionary resistance broke down. The rebel troops, very disheartened, withdrew to the mountain fastnesses where in almost impenetrable forests they could live by plunder and practically without fear of molestation. To hasten the breakdown of morale in the revolutionary army, General Blot immediately issued a proclamation of amnesty carrying with it freedom to all except the chiefs. Visions of funds from government strong boxes would operate strongly in favor of the loyal troops. It looked as though Bobo had reached the end of his tether.

Most of July passed in comparative peace and quiet, though revolutionary activities were apparent here and there within the confines of the small republic. On July 27, however, startling news was received and the American naval forces hastened to the capital where a political volcano was then in eruption. July 27 proved a stirring day, even in the history of the Black Republic. Learning that a revolution had broken out within the capital itself, President Guillaume Sam directed General Oscar of the police to kill all political prisoners then in jail. One hundred sixty-nine unfortunates were murdered in their cells, under most foul circumstances. These men, all of prominence in politics and business, were shot in cold blood. The bloodthirsty Oscar, fearing revenge, took refuge in the Dominican legation. General Polynice, two of whose sons had been murdered in their cells, violated the legation, forcibly removed Oscar and killed him. While the U.S.S. *Washington* bearing Admiral Caperton was reported on the horizon, hundreds of relatives of the murdered prisoners, then burying their loved ones, cried, "The *Washington* is coming. Now is our time. When she arrives, it will be too late." These were joined by a frenzied crowd of Haitians of the better class, and running to the French legation, forcing their entrance despite the vigorous protests of the French minister, they found the terror-stricken president whom they dragged through the transom of the bathroom up-

stairs. They continued to pull the wretch by the heels over the rough stone driveway down to the back gate. Just outside the enclosure, they murdered him. And in order to add a touch to an already barbarous proceeding, they cut his body into many pieces, and with his hands, feet and head impaled on sticks, and his memberless torso secured with a rope, they paraded the remains through the streets of the city. At the first sign of trouble, the president, so the story runs, rushed to the door in the high wall which separated the French legation from the palace, and which opened therein. The key to this had always been carried by the presidents against such contingencies. Finding that the lock had rusted, and that the French legation could not be entered in that manner, the president made his entrance by climbing over the stone wall. Another curious incident occurred at that time. The mob which violated the French legation was led by Charles Zamor, the same man who, on one occasion, had been the ex-minister during the previous administration and who had himself taken refuge in the French legation for many months at the time when Guillaume Sam was president. There he had been cared for and actually fed by the hands of the French minister's own daughter, so when he presented himself at the legation at the head of this frenzied mob and demanded the person of the president, this same young woman met him, upbraided him for his conduct and reminded him of his obligation to her and to the French government. Her argument was effective, for Zamor bowed low and withdrew, remarking that whereas he could be responsible for the behavior of the soldiers, he could not promise to control the civilians whose relatives had been so brutally murdered that morning.

The French minister was profoundly indignant at the violation of his legation and insisted upon landing men from the French cruiser then at Port au Prince. The situation in the city was acute. Murder, anarchy and revolution stirred the populace to its depths. Nothing but immediate and effective measures would restore law and order. It was obvious that if American sailors did not land immediately, men from the French ship would. The American admiral, with characteristic promptness, directed the disembarkation of two companies of marines and three of seamen from the *Washington*. The slight resistance

offered by sniping from the roof-tops was overcome without casualties to the Americans. Soon the main body of our land forces had bivouacked in the market place for the night. Five hours later, word was received from the administration at Washington expressing a wish from the Secretary of State that American forces be landed for the protection of life and property and that the representatives of England and France be advised that their interests would be safeguarded.

The first night of our occupation passed quietly. With the dawn of the awakening of normal activities throughout the city, it became apparent that no government or authority existed within its walls and that no group of men was for the moment able to hold and carry out necessary measures. With the assistance of the so-called Revolutionary Committee, composed of Generals Polynice, Delva, Charles Zamor, Noel, Nau, Samson, Mon Point and Roban, all Haitians were immediately disarmed. Nevertheless a great spirit of uneasiness was noticeable. Both houses of Congress met and a stormy session ensued, following an effort to elect a chief executive. Bobo and Cauvin were the only candidates. But sufficient confidence in them to insure their election was not in the hearts of the legislators.

The situation was further complicated by the announcement that the Revolutionary Committee would support Rosalvo Bobo for president. It was generally believed this was done after the office had been offered to twelve others. Such a bashfulness was unprecedented, and not native to most Haitians. To aggravate an already complicated situation, the entire government army was in the north of the republic where it announced an intention to support its commander, General Bouraud. All the controlling factors in the political situation were outside the capital. The situation might become more involved and acute at any moment. Immediately thereafter, the administration at Washington directed that an expeditionary force of marines be sent to Admiral Caperton in order that he might take the necessary measures to patrol and maintain order in Port au Prince. The capital at that time was a city of nearly one hundred thousand inhabitants, and the four hundred American sailors and marines then ashore were not sufficient to preserve law and order in the place.

In the meantime, the Revolutionary Committee was issuing manifestoes and proclamations. Port au Prince temporarily settled down to a life of quiet tinged with uneasiness. In the north, it was obvious that no lasting peace could reign in the Black Republic so long as rival armies were about to contend for the possession of Cape Haitien. It looked as though nothing but the disbanding of the contending forces under the revolutionist Bobo, and government troops under Blot and Bouraud would accomplish the greatly desired result. The admiral concluded that it would be wise to send into the north of that country a mixed commission to impress upon the revolutionary faction the necessity for disarmament and a return to their normal activities. This commission, composed of Lieutenant Coffey of the Navy, ex-President Legetime, Archbishop Conan of the French Catholic Church, ex-Minister Zamor, General Polynice of the Revolutionary Committee and Colonel Chevalier, proceeded to Cape Haitien on August 1 in the U.S.S. *Jason*. Little of interest occurred subsequent to their departure, though the Revolutionary Committee, as though to justify its existence, took occasion to rush to prison ex-Senator Dessources. General Robin, who engineered this high-handed action, became very indignant when Admiral Caperton protested against his measures. So the ex-senator was released by the general but the latter was furious and terminated his interview with the admiral's representative by saying that perhaps they would not meet again in friendship. So there was added another comic touch to the picture.

Despite the apparent tranquillity which had outwardly settled over the city, the presence of about fifteen hundred Cacos still occasioned an undercurrent of uneasiness among all classes of Haitians. These lawless negroes, most of whom lived a carefree and irresponsible life in the mountains, were professional bandits and soldiers acknowledging allegiance often to many leaders who owned them body and soul. These in turn could easily be induced to accompany any chief or faction or to support any government. The promise of remuneration alone sufficed. These independent negroes, needless to say, recognized no government. As they were feared by all law-abiding Haitians, it might be said that they were practically in control of the internal

politics of that country. At that particular time, they were supporting Bobo and were demanding his election. In fact, the members of the Haitian Congress were becoming terrorized, and it began to seem as though the election of any one but Bobo might be extremely doubtful.

To the admiral, therefore, it seemed the policy of wisdom to suggest that the Haitian Congress postpone the election until the mixed commission had returned from Cape Haitien. This he did.

The labors of the commission were not without incident. When its members arrived at Cape Haitien, it was decided prudent not to permit Zamor, Polynice and Chevalier to land. The former had just escaped from prison while the other two were politically inimical to the late government. When informed that he would not be permitted to land at Cape Haitien, Zamor launched into one of the flights of oratory for which he was justly famous. A few moments of verbiage, however, cooled him and he soon abandoned himself to reason. Months afterwards, Zamor thanked the admiral for keeping him afloat, averring that his action at that time unquestionably saved him from assassination.

In the city of Cape Haitien, the commission encountered considerable difficulty in attempting to persuade the various factions to accompany them to Port au Prince. During the conference with General Blot, mention of Zamor's name caused an excited remonstrance. Blot himself planned to resign his command of government troops in the north. Pique and the realization of his blasted hopes in all likelihood played a large part in the decision. He found it difficult to make up his mind to go to the capital. Very likely he feared treachery at the conference. He may well have had in mind the method employed by the French who, early in the nineteenth century and under circumstances of the greatest treachery, captured Toussaint l'Ouverture. Then suddenly General Blot departed and General Bouraud's Cacos made an attempt to enter Cape Haitien. Most of the government supporters, deserted by their leader and believing he had been paid to leave, took refuge in the grounds of the Archbishop's palace while others, less optimistic over their chances of remaining unharmed, threw their rifles into the sea and made an attempt to swim off to the Haitian gunboat, *Nord Alexis*. The U.S.S. *Eagle*, then in port, had instructions to prevent

bloodshed. Her commanding officer advised General Bobo not to rush the city. Heedless of this warning, the Cacos made an attack. It is reported that the first shot from the *Eagle's* six-pounders carried away the forelegs of the horse on which the Bobo general was leading the charge. This surprising marksmanship, or some other equally determining factor, nonplused the revolutionists and dampened their ardor, so the Haitians swore that their only desire was to attend church in the city. They readily consented to disarmament and were permitted to enter Cape Haitien the next morning.

August 4 proved an eventful day. The U.S.S. *Connecticut* with several hundred marines arrived at Port au Prince and immediately began the disembarkation of her expeditionary forces. They were landed without untoward incident and encamped there that evening.

The same morning, the joint Haitian and American commission held a conference with General Bobo. He was persuaded to march his troops to the capital and disarm them there. He also was prevailed upon to accompany the commission to the capital. At the same time one company of marines and two of seamen were landed at Cape Haitien and occupied the fort in that city. Their possession of a number of field pieces, several hundred rifles and a million rounds of ammunition immediately clarified the situation.

On the afternoon of August 5, the *Jason* set sail for Port au Prince. On board she carried a notable gathering of Haitians, all bound for the capital to witness the election. General Bobo with a staff of twenty-six generals, Generals Laroche and Bouraud also took passage. Lieutenant Coffey had a very amusing time trying to get Bobo to make the trip with fewer than forty generals. A compromise of twenty-six was finally decided upon. In the *Jason,* it was found necessary to separate the factions. Bouraud and his party were quartered forward while Bobo and his following, aft. He talked incessantly about his plans for the regeneration of his country. Zamor and Chevalier confided to the American naval officer that General Bobo was crazy. They explained their allegiance to him as the payment of a political debt, for they had promised their support to any one who would overthrow the Guillaume administration.

The story of Bobo's arrival and of his interview with Admiral Caperton on the *Washington* is amusing. When the *Jason* came to anchor in the harbor of the capital, Bobo, accompanied by four of his generals, got into a sailing launch. As he approached the flagship, the admiral had his first glimpse of this famous red-headed mulatto. Nearing the flagship, Bobo arose. Despite the intense heat, he was attired in a frock coat and high hat. Tall and erect, one hand stuck Napoleon-like into his coat and assuming a commanding attitude, he faced the flagship and gazed at her in a lofty manner as he came alongside. As Bobo and his four frock-coated dusky followers mounted the ladder, it was observed that all carried their suitcases upon which had been painted: "Dr. Rosalvo Bobo, Chief of Executive Power"; "Dr. So-and-So, Minister of the Interior"; etc. On the quarter deck, Bobo consented to part with these visible evidences of self assumed office but as he stalked into the cabin, he was livid with anger. The admiral informed him that the action of the United States was taken to insure peace, to promote law and order in the republic and that that country had no other interest than to help in the establishment of a stable government. Bobo was told that the continued existence of his armed force constituted a grave menace to the country. His patriotism was appealed to and he was asked to renounce his presidential title, dismiss his cabinet and go ashore as a mere citizen. To do this and to consent to a free election was hard for Bobo to understand. Any election which did not carry him into power seemed to him almost incomprehensible. He was told that so long as one Caco remained armed and attempted to intimidate the natives, he, Bobo, could not be considered an acceptable candidate for the presidency. So, after some deliberation, he sent the following message to the Committee of Public Safety at Cape Haitien: "I hereby order all generals of the Caco army to enter town and surrender their arms to the American captain. Carry out my orders that we may save our menaced Fatherland. Sincerely, /s/ Bobo."

One wondered how many more generals there could have been in the miscellaneous assortment of troops and Cacos he had rallied to his standard. Generals in the Caco army could only be distinguished from the troops by their possession of more

clothing or maybe a pair of shoes, and, in some instances, a horse. Moreover, the commissioning of a general involved hardly more than a promise on the part of the leaders and some assurance that the Haitian treasury would some day be unlocked for his benefit.

After this interview, Bobo, his cabinet and their dress-suit cases left the ship. Once ashore, the general made a desperate attempt to further his candidacy. In order to advance the interests of his own popularity, he climbed into a dilapidated carriage whence he threw handfuls of small change into the streets. As a consequence, a considerable crowd followed him into the city, for he seemed possessed of a sufficient amount of money to compel their interest. This expedient had been adopted on many previous occasions by others who aspired to the presidency. The presence of Rosalvo Bobo in the capital at that time had an unfortunate effect. Signs of uneasiness appeared in the populace and the many Cacos immediately felt the stimulus of their red-headed chief. This unruly element in Port au Prince forced the American admiral to direct the dispersion and return to their homes of these lawless negroes. During the next few days, many were disarmed and others arrested. A detachment of marines encountered the only real opposition near the Custom House. The Americans were fired upon by the crowd on the sidewalk. As a result of this, two Cacos met an untimely fate.

A comparative quiet soon settled over the capital as well as over other parts of the republic. Bobo's telegram to his generals was evidently producing results for during August 8, several hundred disarmed soldiers came from Cape Haitien. To each of these was paid ten gourdes or about two dollars and they were informed that their status as soldiers had ceased and that they would be required to return home to engage in more peaceful occupations. Soon it became apparent that with the quelling of revolutionary activities, Haiti could again engage in the lawful pursuit of a general election. Senators, deputies and citizens began to clamor for the election of a president. Most of the educated Haitians who from time immemorial had lived and fattened on politics, strove to have their particular candidates put before the public. The Caco element, though disarmed, still dominated Congress to such an extent that many of the mem-

bers feared not to elect Bobo. Their Congress apparently still had hopes of electing some one of the anti-American faction who could appease us, and who at the same time would return to the old governmental abuses to which those in power had been accustomed, and which many deemed absolutely essential. So it seemed that there did not exist in the Haitian Congress a sufficiently strong sentiment to demand a capable, honest and patriotic government.

The election of the president was, therefore, the most important feature of the situation and until that had taken place, great uneasiness and excitement with possibilities of outbreaks were possible. As the days passed, the undesirability of Bobo as a candidate became more and more apparent. Intelligence he certainly possessed. His influence with the lowest classes, his bigotry, personal ambition and lack of real patriotism became more and more pronounced. Senator Dartiguenave, on the other hand, consented to be a candidate only after having been assured that his government would be supported by the United States. He realized only too well the character of his people and that no government in Haiti could long please or be accepted by those not in power and that, lacking assistance from without, the president would be ousted as soon as his political opponents could gather sufficient funds to finance a new revolution, for there were Cacos in plenty who were willing to fight, though not without pay. On August 8 the American admiral held a conference with those two leading candidates and after detailing to them the present unfortunate situation in their country, asked Dartiguenave whether if elected he could be counted upon to be guided in his official actions by an earnest devotion to the interests of Haiti. "I promise," responded the senator. "I have no other ambition."

Bobo also promised and added that he would be happy to lay down his life for his country. When Dartiguenave was asked if he would loyally and helpfully assist Bobo in case the latter were elected, the senator with quiet dignity promised his loyal and earnest support in every effort to benefit his country. But Rosalvo Bobo, when asked if he would loyally serve Dartiguenave did not seem so anxious to lay down his life for the cause and shouted theatrically, "No, I will not. If Senator Dartiguenave

is elected, I will not assist him but I shall leave the country to her fate. I, of all, am fit to be president. I alone understand Haiti, her aspirations and her needs. There is no patriotism in the country compared with mine. And the Haitians love no one as they do me."

This interview afforded a very interesting and amusing comparison between the two leading candidates in the presidential race. The quiet, dignified and determined attitude of the black senator contrasted sharply with the petulance and narrowmindedness of the Titian-haired mulatto. This interesting episode in the history of Haitian affairs apparently led the Revolutionary Committee ashore to feel that Bobo would not be elected. As a direct consequence, this committee, imbued with the necessity of bringing political peace to their country, dispatched to Washington a cablegram in which they recommended the establishment of a provisional government. Ashore, it seemed to have been generally expected that this move was occasioned by the practically definite knowledge that their candidate, Bobo, would not be elected to the presidency if their Congress had a free election, and one uncontrolled by outside influences. It was becoming more apparent that a free election would carry into the presidency some candidate, not Rosalvo Bobo. It was seen further that the forming of a provisional government would be practically a government by unconstitutional means and would be tantamount to a revolution in favor of Dr. Bobo. Before very long, it became increasingly evident that most prominent Haitians were coming to the conclusion that an immediate election by constitutional means was necessary. To be sure, Bobo's constituents were not inclined to this view. As the day of election approached, uneasiness in the capital and elsewhere became noticeable. Fighting on the outskirts of Cape Haitien and elsewhere was almost a daily occurrence, for most of Bobo's revolutionary troops had no desire for absolute peace. The Bobo faction in the capital, having lost its power to intimidate Congress since the Cacos had been driven from town, showed signs of increasing desperation. Many threats of assassination were made against Dartiguenave and some of the other senators. Charles Zamor, furthermore, set a bad example for his faction by practically supporting any measure which did not maintain law and order.

August 12 was the day set for the election. The American admiral took special precautions for the protection of Congress while in session, while a picked guard was detailed to care for Senator Dartiguenave. During the interim which preceded the election, the administration at Washington caused to be made known to all Haitians that our only interests were to assist Haiti in the establishment of a firm and lasting government by their own people. It further stated that it preferred the election of Senator Dartiguenave. This seemed a not unnatural thing for the administration to do, for his past record in the Haitian Congress had been one of integrity, while his patriotism could never be questioned except by extremists in the opposition party. Just before the election, news was brought to the American admiral that Bobo's followers had determined to prevent the election and that a conspiracy had been discovered which provided that early on August 12, there should burst upon the capital such a scene of riot and bloodshed that the election could not be held. A number of law abiding Haitians, much worried at this possibility, not to be considered unusual in the history of the Black Republic, begged the American admiral to intervene. Dr. Bobo and the Committee of Safety were summoned immediately to the American legation. To the conference came Dr. Bobo, Charles Zamor, Polynice, Roban, Chevalier, Charles Delva and General Montfous, the last being the chief of the local Cacos. Two of the admiral's staff were also there. The Haitians were informed that the Committee of Safety no longer existed and they were warned that any further exercise of its authority would involve serious penalty. They were told that the conspiracy had become known and would become unsuccessful. The Haitians made no pretense of innocence. Their only fear was lest they be unable to stop the prearranged riot. Charles Delva laughed, exclaiming, "You've won."

Election was announced for the following day, August 12. In order that the ceremony might be held without disorder, the U.S.S. *Castine* and the U.S.S. *Eagle* were moored at the wharf and received orders to land men to reinforce those already ashore. The American *chargé d'affaires* next informed the senators and deputies as well as the candidates that the administration at Washington had no design upon the political or

territorial integrity of Haiti and wished merely to aid the island in establishing a stable government for the small republic. This announcement was received by the Haitian Congress in a particularly friendly spirit so that it was evident that barring the Caco element, the attitude of the American government was eminently satisfactory to the majority of Haitians. That the Revolutionary Committee did not hold the same opinion was again evidenced when it was discovered that the telegragh office had been closed to everyone except the Revolutionary Committee. This, of course, occasioned prompt action by the admiral who took measures to keep the building open and to see that the orders of the committee were disregarded.

Up from behind the heavy mists of a tropic morn, the sun rose on the eventful twelfth of August to find the people of Port au Prince on edge and prepared for any eventualities which might follow the election of a new president. Round the edges of the republic, in the north, and west and the south, some skirmishing and fighting continued, but at the capital the populace was outwardly calm. In the city itself, unusual precautions had been taken to insure peace and order throughout the day. Marines patrolled the square and immediate vicinity of the palace. There Congress was to meet. Great care was taken to find hidden arms and machine guns which many believed were secreted in the immediate neighborhood and which, as had been done at least on one previous occasion, might be turned upon the patriots assembled in the Halls of Congress. What a pleasant sensation it must have been to cast a ballot under such circumstances. To give concrete force to their belief all the senators and deputies asked permission to carry firearms. They showed such a real fear for their lives that it was granted with the understanding that they would be free to shoot themselves while in session, but not others, and, so history might not repeat itself, the American admiral provided against interference with their ballot. It had already become evident that hundreds of friends of the Congress desired to be present, so that from the galleries they might effectually and with sidearms, register their approval or disapproval of the proceedings. Thus, every man entering the House of Congress was searched. Despite protests, these well-

meaning friends of the legislators filled a wagon with their personal firearms.

When the ballots were counted, Dartiguenave received ninety-four out of a possible 116, while Rosalvo Bobo was honored with three scant votes. Enthusiastic cheering followed the announcement of Dartiguenave's election to the presidency. After taking the oath of office, he made a speech in which he stated that he had never been the chief of any faction and that his sole desire was to govern his country for its own benefit in accordance with its laws and constitution. He professed no personal ambition and asked that all join him in an attempt to govern Haiti with wisdom. He thanked the admiral's representative that an election free from intimidation had been made possible and that his people were being given an opportunity to recover from the political disasters which for generations had overwhelmed the country.

Then came the inaugural procession, during which the president, with Captain Beach of the Navy at his side, drove through the city in a carriage. The president desired companionship of undeniable loyalty. Followed by marines and Haitian soldiers, resplendent in colorful uniforms, and under the rays of the tropical sun, they drove to the house of Deputy Cham where the inaugural reception was held. Thither flocked senators, deputies, diplomats and other foreigners to pay their respects to the new chief executive. There he awaited with impatience the inaugural salute which was to announce his election. This had previously been arranged. Haitian gunners were to fire the guns loaded by American sailors. Minutes passed without the sound of a gun. The president became more and more nervous, so that a naval officer was dispatched to the fort, where after a great interval, firing began. There was a painful silence between the discharge of each piece. The officer had found the guns in disorder, without ammunition, shells or firing apparatus. Some empty shells were finally located, along with necessary powder. Each of the guns he loaded with his own hands, using wadding made of mud. Cigarette ashes were the firing device and he personally supervised the firing of each of the twenty-one guns and the hoisting of the Haitian national flag which the admiral had directed be made for this occasion. And then, as if nature had taken offense at this

unusual procedure, a sudden hurricane of great violence swept over the capital and drove ashore many of the craft anchored in the harbor. With its passing came a sudden calm in the hearts of the people. Thus was inaugurated a new era and a new president in the history of that volcanic republic. Free from fear, intimidation, murder or assassination, a constitutional election of the president had been held in the Black Republic.

THE NAVAL OBSERVATORY

By Captain Austin Kautz, U. S. Navy

ALTHOUGH the people of the United States in general and officers of the Navy in particular are cognizant of the existence of the Naval Observatory in Washington, the capital of the nation, their information concerning its activities and the scope of the work accomplished there is limited in extent. Naval officers as a rule, especially those who have served as navigators, know that the Naval Observatory is concerned with repairs to nautical instruments, that compass reports are sent there, and that chronometers and watches are tested there before being issued to ships. People in civil life know that standard time for the United States emanates from the Naval Observatory and that the *Nautical Almanac* is compiled there. But the information as to the purpose and object of the institution has not been sufficiently disseminated and the knowledge of most people is confined to the most meager details. Although a government institution and therefore an activity that should be of interest to the people at large, the fact that it exists primarily for the service of the Navy operates to restrict interest to people engaged in industrial, mercantile, and scientific pursuits.

In view of the inquiry made by a special joint committee of Congress appointed to consider a proposed plan for a reorganization of the different departments and bureaus of the Government, one of the provisions of which involves the transfer of the Naval Observatory from the Navy Department to the Department of Commerce, it is believed that the attention of officers in the Navy and the people of the country should be directed to the mission of the Naval Observatory and to the importance of its work to the Navy and the national defense.

The public is too often impressed by misleading statements published in the daily papers disparaging the maintenance of an observatory for naval purposes and advocating the transfer to another department on the ground that it is a nonmilitary activity.

It is important, therefore, that naval officers should be informed as to the real facts concerning the relation the institution bears to the Navy in order that they may be in a position to refute statements that are at variance with fact. It is believed, accordingly, that a brief description of the origin, history, and work of the institution will be both instructive and opportune.

Origin and History

The idea of a government observatory was first agitated by Mr. F. R. Hassler, who had been appointed by President Jefferson in 1807 to undertake the preliminary work of a survey of the coasts of the United States. Hassler, who was formerly a professor of mathematics at the Military Academy at West Point, drew up a plan for the establishment of an observatory in Washington, but Congress, although authorizing a survey of the coast, decided that an astronomical observatory was not necessary for this purpose.

Congressional action for the construction of an observatory originated in the earliest movement for establishing a first meridian in the United States. A memorial presented to Congress in 1809 by William Lambert, a resident of Virginia, asking that funds be provided to enable him to carry out his project produced only half-hearted action. A bill "authorizing the establishment of an Astronomical Observatory" introduced in Congress in 1813 was never voted upon.

The next movement to induce Congress to provide funds for the establishment of an observatory was initiated by President Adams, who, in his annual message, December 6, 1825, recommended the establishment of an astronomical observatory. A bill was introduced but was not voted upon. Mr. Adams did not advocate this measure again during his term of office, but in 1838, while chairman of the House committee on the Smithson bequest, he was active in his endeavors to apply the income to be derived from the fund to his pet project. Opposition, however, was too strong and no legislation was authorized.

For the eventual establishment of a permanent observatory we are indebted to the exertions of an officer of the Navy, Lieutenant James M. Gilliss, whose scientific achievements were not excelled by any officer of his time. Gilliss was detailed in 1836

(November 10) to the Depot of Charts and Instruments, which had been established in Washington by the Navy Department in 1830 under the superintendency of Lieutenant L. M. Goldsborough. This officer had been succeeded in 1833 by Lieutenant Charles Wilkes, who removed the depot to Capitol Hill and erected near by, at his own expense, a small observatory. Wilkes was detached in the spring of 1837 and Gilliss thereupon became superintendent. In August, 1842, Congress passed a bill authorizing the erection of a permanent depot for charts and instruments. The duty of preparing a plan for the new depot was entrusted to Gilliss, who went abroad to study foreign observatories and in 1843 submitted final plans which were approved. While Gilliss was engaged on this work, Lieutenant M. F. Maury had been placed in charge of the old depot. The new building whose construction Gilliss superintended was situated at Twenty-Third and E Streets, N. W. in Washington and is now the Naval Medical School. On the completion of the new "Depot and Observatory" as it was then called, (September, 1844), Lieutenant Maury was made its superintendent. This officer remained in charge for seventeen years until 1861, when he resigned to join the Confederacy. During his superintendency the official designation was, in 1854, changed to "the United States Naval Observatory and Hydrographic Office." On April 23, 1861, Gilliss, then a commander, succeeded to the superintendency. Maury, while superintendent, had devoted his energies almost exclusively to hydrographic study. When Gilliss assumed charge, more time was devoted to astronomical work. In July, 1862, the Naval Observatory, which had been assigned to the new Bureau of Ordnance and Hydrography, was transferred to the Bureau of Navigation. The death of Captain Gilliss occurred on February 9, 1865. He was succeeded on April 28 by Rear Admiral C. H. Davis.

In August, 1865, the Observatory began transmitting daily time signals over the telegraph lines. On June 21, 1866, the connection between the Observatory and the Hydrographic Office was severed by law and each became a separate institution.

In 1881, during the superintendency of Rear Admiral John Rodgers and principally through his exertions, a bill was passed by Congress authorizing the purchase of a new site for an ob-

servatory. Five years later, in 1886, funds for a new building were appropriated and transfer to the new site was effected in 1893.

The *Nautical Almanac* office, established in 1847 by Lieutenant C. H. Davis, was at the same time transferred from its former location on Nineteenth Street and Pennsylvania Avenue and became a department of the Naval Observatory.

The grounds and buildings of the present institution are situated on Georgetown Heights between Massachusetts and Wisconsin Avenues in Washingon, D. C., and cover an area of about sixty-two acres. This site was chosen in order that the astronomical instruments should be free from disturbance by terrestrial vibration caused by railroads and other heavy traffic. The grounds were originally planned to include a circle of 1000 feet radius and the buildings are located approximately in the center so as to be as far removed from traffic routes as possible. The effect of placing the instrument houses in the midst of green grass and foliage is to prevent heat radiation, which was set up by the pavements and buildings surrounding the old observatory site, seriously interfering with the astronomical observation.

The work of the Naval Observatory includes four principal functions: namely,

(1) Continuous observations of heavenly bodies for position.

(2) Daily time signals which are transmitted by radio and by telegraph.

(3) Preparation for publication of the *American Ephemeris* and *Nautical Almanac* and of the *American Nautical Almanac*.

(4) Supply, upkeep, and repair of navigational instruments for naval vessels and air craft.

Under the first head, the Observatory staff maintains continuous astronomical observations for the absolute positions of the fundamental stars, and the independent determination by observations of the sun, of the position of the ecliptic and of the equator among the stars and of the positions of the stars, moon, and planets with reference to the equator and equinoxes in order to furnish data to assist in preparing the *Nautical Almanac* and the *American Ephemeris* and *Nautical Almanac*, and in improving the tables of the planets, moon and stars and for determining the time for the daily time signals.

Under the second head, the Observatory transmits time signals twice daily, at noon and at 10:00 P. M., seventy-fifth meridian time, thereby establishing standard time for the country and the Atlantic Ocean. The signals are transmitted through the Naval Radio stations at Arlington, Annapolis, and Key West and the noon signal also by land wire. The Navy Chronometer and Time Station at Mare Island, Cal., furnishes similar service for the Pacific Coast and Ocean. The mariner thereby is enabled to ascertain his chronometer error and his longitude by observation, thus determining the position of his ship at sea. It is hoped, in time, by the establishment of a suitable relay, to reradiate the time signals from Mare Island and Pearl Harbor thereby abolishing the present time-service station at Mare Island. The chronometer testing and repair station will be continued in any event. Special signals are also sent out by the Naval Observatory for the use of scientists and astronomers, as well as surveying, eclipse, and longitude expeditions. Special signals were sent out recently for use by astronomers in Australia and others for use by observers of the Coast and Geodetic Survey in Alaska for determination of longitude.

Under the third head, the work of the *Nautical Almanac* office includes the computation and preparation of the data for the above named publications and also the improving of the tables of the planets, moon, and stars used in the preparation of the annual volumes. The *American Ephemeris* and *Nautical Almanac* must be published and distributed prior to the beginning of the year to navigators, astronomers, and surveyors in all parts of the world. With the authorization of Congress the *Nautical Almanac* office exchanges data with foreign nautical almanac offices in Great Britain, France, Germany, and Spain, thereby reducing the amount of duplication of work and increasing the amount of data available.

Under the fourth head, the Observatory undertakes the supply, development, upkeep, and repair of all navigational, aeronautical, and aerological instruments for the Navy. This includes all instruments for taking astronomical observations at sea and in the air, surveying instruments, chronometers, watches, instruments for taking meteorological data, magnetic and gyroscopic compasses, binoculars and spyglasses, telescopes, etc. The Observa-

tory has a temperature room and other facilities for testing and comparing chronometers and other time pieces with the standard clocks. There is also a nautical instrument repair shop employing a force of sixteen skilled mechanics especially fitted for this particular kind of work and which is expressly equipped for testing, developing, adjusting, and repairing navigational instruments.

These activities are correlated and are associated in one administrative department, thus providing for greater economy and efficiency.

In addition to the principal functions outlined above, the Observatory, when opportunity offers and Congress authorizes the expenditure, sends out expeditions to observe solar eclipses in the interest of science. Photographic and visual observations of a total solar eclipse furnish data which are used in improving the tables of positions of the moon for testing the Einstein theory. The Observatory has, between 1869 and 1918, sent expeditions to observe total solar eclipses on eight different occasions. It is now preparing to send an expedition to New England, providing Congress authorizes the expenditure, for the purpose of observing the total solar eclipse of January 24, 1925.

For purpose of administration the organization of the Observatory is divided into two main divisions, (1) the Astronomical Branch, and (2) the Nautical Branch.

The Astronomical Branch includes the Department of Astronomical Observations and the Department of the *Nautical Almanac*. The Department of Astronomical Observations is subdivided into six divisions, in which the various instruments are grouped in accordance with the character of work they accomplish. The principal equipment includes two refracting telescopes on equatorial mounts, one twelve-inch and one twenty-six-inch; one six-inch transit circle; one nine-inch transit circle; one photographic telescope; one photo heliograph; one photographic zenith tube, and one altazimuth instrument. Each division is in charge of an astronomer or an assistant astronomer.

The Nautical Branch comprises six divisions as follows: (1) Magnetic compasses; (2) Gyroscopic compasses; (3) Nautical instruments and time service; (4) Air navigational and aerological instruments; (5) Inspections, and (6) Supply division. A line officer of the Navy is in charge of each division. The

duties of the Nautical Branch are outlined in the description of the second and fourth functions of the Observatory. This branch constitutes the material part of the Bureau of Navigation.

Reasons why the Naval Observatory should not be taken away from the Navy Department.

It will be seen that the Naval Observatory was founded through the exertions of a naval officer mainly for naval purposes. It has since its inception been devoted primarily to the interests of the Navy and the Merchant Marine. Its control by the Navy Department and its supervision by a line officer of the Navy are a guarantee that the requirements of the Navy as well as the Merchant Marine will be considered as paramount. The present work of the institution is the result of a gradual development to comply with the demands of the naval service.

The efficiency of the fleet, the first line of defense, is dependent on the products of the Naval Observatory.

The four functions of the Observatory are correlated and their administration under a common head promotes co-ordination and efficiency.

The Naval Observatory is essential to the Navy and Merchant Marine because it provides for these services the means whereby the safe navigation of ships at sea is insured.

The transfer of the Naval Observatory to a department other than the Navy Department would require the creation of a new plant or the duplication of the present one for at least two of the functions. This would entail a large expenditure by the Government for the construction of new buildings for store houses, repair shop, non-magnetic house, chronometer and time service stations, and other necessary equipment.

The separation of the Nautical Branch of the Observatory from the Astronomical Branch, the divisions of which are interrelated, would be at the cost of a distinct loss in efficiency. The time service, a military activity involving the fighting efficiency of the fleet, should by all means remain under the Navy Department. The transfer of the Time Service along with the Astronomical Observatory, to a nonmilitary department of the Government, would involve a division of responsibility, since the time signals are transmitted via naval radio stations which are controlled by the Navy Department. The question of time is a

vital one to navigators and the dependence of the Navy and Merchant Marine for this all important requisite on an outside agency would impair the efficiency and might menace the safety of the fleets at sea.

The *Nautical Almanac* office should remain under the control of the Navy Department. The data contained in the publications of the office contribute to the military efficiency of the fighting ships of the Navy and it is therefore imperative that the Navy Department should have control of their preparation and issue to the service.

There is no other institution in the country that is equipped to perform the service that is accomplished by the Naval Observatory. The astronomical work performed at the Observatory is designed primarily to serve the interests of the Navy and is essentially practical in character. Other observatories are engaged in pure science investigations and to that end utilize the products of the Naval Observatory. The transfer to a nonmilitary department would involve the replacement of a naval officer by a civilian as superintendent, who would lack the necessary technical training and knowledge of naval requirements. Furthermore, a civilian astronomer in charge of the Naval Observatory would be inclined to neglect the tedious utilitarian work of the Observatory's particular function of positional astronomy in favor of the more attractive work of research or astrophysical astronomy.

It is, therefore, believed that the administration of the Observatory should be under control of a naval officer who is an expert in the needs of the navigators of ships at sea.

It has been charged that the continuity of the work of the Naval Observatory is interfered with by not having a superintendent who will be appointed to serve permanently instead of temporarily as at present. The continuity of the astronomical work is assured by the existence of an Astronomical Council, which includes the superintendent, the assistant superintendent, the director of the *Nautical Almanac*, and five astronomers, and the executive committee of three astronomers. The astronomical members of the council, whose tenure is practically permanent, ensures that the work is laid out in accordance with a definite plan.

The work of the Naval Observatory, besides being of vital importance to the Navy, serves private, industrial, commercial, and scientific activities. The Time Service is of benefit to railroads, telegraph and cable companies, navigators, shipping interests, and to scientific and technical men, including astronomers, surveyors, and watch and clock makers. The astronomical publications issued by the Naval Observatory, including the *American Ephemeris* and *Nautical Almanac,* are utilized by astronomers and other scientific and technical workers all over the world. The Observatory also furnishes the telegraph and cable companies with data concerning sun spots in order to enable them to take the requisite precautions against damage as the result of terrestrial magnetic disturbances occurring when sun spots are numerous. But these are incidental. Its main purpose is to serve the Navy, and to serve the Navy best, it must obviously remain under control of the Navy Department.

NOTE: The following published articles were consulted in the preparation of this paper:

"Early Movements in the United States for a National Observatory" by C. O. Paullin. (*Popular Science Monthly,* October, 1907.)

"Founding and Development of the Hydrographic Office" by Lieutenant W. S. Hughes, U. S. Navy.

"The Work of the Naval Observatory" by Rear Admiral C. M. Chester. (The U. S. NAVAL INSTITUTE, June, 1904.)

"The Relation of the U. S. Naval Observatory to the Navy and Shipping Interests of the Country" by Rear Admiral J. A. Hoogewerff, U. S. Navy.

INCIDENTS OF THE VOYAGE OF THE U. S. S. "CHARLESTON" TO MANILA IN 1898

By Captain A. Farenholt (MC), U. S. Navy

ON MAY 5, 1898, the U.S.S. *Charleston* was placed in commission at the Navy Yard, Mare Island, Cal. It had not been the intention of the Department to commission the vessel on that date but the necessity of immediately sending a ship to the Asiatic station to carry supplies and munitions and to reinforce Admiral Dewey's squadron made this advisable.

The *Charleston* was commissioned with rather more notice than had been ordinarily customary before war was declared. The crew marched up from the receiving ship *Independence* in battalion formation with the yard band playing and were mustered on the spar deck with the half-dozen officers who had reported on the starboard side. Commander John B. Brice, the captain of the yard, read the orders of the Secretary of the Navy to place the ship in commission and that of Rear Admiral Wm. A. Kirkland, the commandant, designating the day. Captain Henry Glass then read his orders to command and cheers were given for the ship, the flag and the new commanding officer. Captain Glass made a short speech and we were piped down, all hands turning to, to get in stores and to make things shipshape.

The yard workmen were still on board and for ten days the greatest activity prevailed. At last we had not only our own stores stowed away but also a large amount that we were to take to the Asiatic station. So much ammunition and various supplies were received that our normal tonnage of 3,700 tons was increased to about 4,300.

We sailed on the morning of May 18 and, after swinging ship, anchored in San Pablo Bay for the night. Before morning some leaky condenser tubes and gaskets were discovered and it was considered advisable to return to the yard for repairs. Three days later we again left the yard and on Sunday morning, May

22, started down the bay, passed San Francisco and steamed out through the Golden Gate.

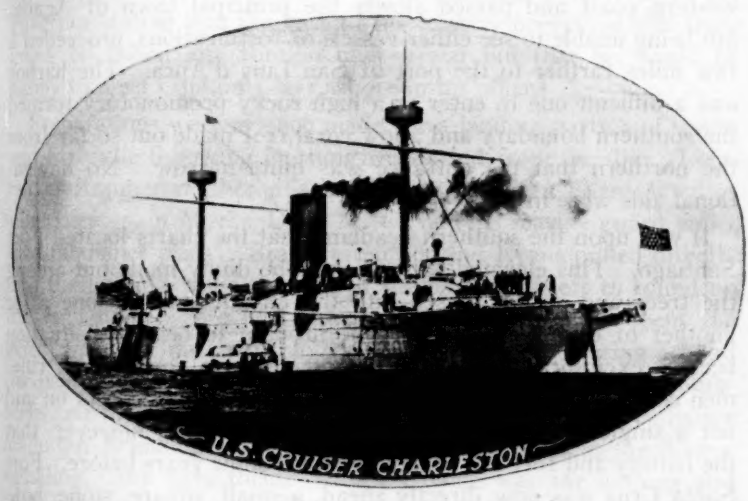
The following officers were on board:

Henry Glass, Captain, Commanding Officer.
G. Blocklinger, Lieutenant Commander, Executive Officer.
Wm. Braunersreuther, Lieutenant, Navigator.
F. M. Bostwick, Lieutenant, Watch Officer.
R. E. Coontz, Lieutenant, Watch Officer.
G. R. Slocum, Lieutenant, Watch Officer.
W. Evans, Ensign, Watch Officer.
W. A. Moffett, Ensign, Watch Officer.
H. T. Percy, Surgeon, Senior Medical Officer.
A. Farenholt, Jr. P. A. Surgeon, Medical Officer.
J. S. Phillips, Paymaster, Pay Officer.
R. W. Galt, Chief Engineer, Senior Engineer Officer.
J. S. McKean, Jr. P. A. Engineer, Engineer Officer.
J. T. Myers, First Lieutenant, U. S. M. C.
A. W. Marshall, Cadet Engineer.
C. E. Leiper, Cadet Engineer.
J. P. Henry, Cadet Engineer.
F. M. Phillips, Pay Clerk.
A. A. Phelps, Gunner.
D. Glynn, Boatswain.
J. H. Gill, Carpenter.

Three newspaper correspondents, Douglass White, S. N. Sheridan, and E. L. Jones, had the Department's permission to make the trip to Manila and were quartered in the steerage. One of these gentlemen was hoaxed into an attempt to secure a scoop for his paper concerning the shooting of "Charlie Noble" by the ship's cook and had his dispatch written to send on our arrival at Honolulu.

The voyage to Honolulu was uneventful and on Sunday morning, May 29, we were berthed in man-of-war row with our stern to the reef and alongside the *Bennington* and the *Mohican*. The city was well decorated and American flags everywhere in evidence. The people were enthusiastic over the question of annexation to the United States. The *Charleston* had been quite a favorite ship in the Islands as she had been stationed there for many months and had brought home the remains of the late King Kalakaua who had died in San Francisco a short time before. On June 1 the first transports to carry troops to Manila arrived. They were the *City of Peking*, chartered by the Navy Department, and the Army transports *City of Sydney* and the *Australia*. They carried eight companies of the regular 14th infantry, the First California infantry, the Second Oregon infantry, and a battalion

of California heavy artillery. Brigadier Colonel T. M. Anderson, a son of General Anderson of Fort Sumter fame, was in command of troops. Commander William C. Gibson, Lieutenant Commander T. S. Phelps, Jr., Lieutenant J. B. Bradshaw and P. A. Engineer H. G. Leopold of the Navy were on board these vessels and on duty to assist co-operation with the Navy. While at Honolulu the *Charleston* was presented, by dowager Queen Kapiolani, with a silk flag which had been made by the young ladies of her household. This was encased in a large Koa wood calabash.



On June 4 we steamed out of the harbor, accompanied by our three transports, and headed to the westward. On the following day all hands were mustered and Captain Glass opened and read sealed orders received at Honolulu. We were instructed to "proceed to the Spanish island of Guam, to use such force as may be necessary to capture the port of Guam, making prisoners of the governor and other officers and any armed force that may be there, destroy any fortifications on said island, any Spanish naval vessels there or in the immediate vicinity, etc." We were naturally much delighted over the prospect of something to do and eagerly broke out encyclopedias and sailing directions and listened to the more or less unreliable stories the few blue jackets we had on board who had been there on whalers could tell us.

The voyage across the 3,200 miles of calm, hot and monotonous Pacific with our convoy was finally over and on Sunday, June 20, at daylight, we sighted the northern end of the chief island of the group. There had been some talk in the wardroom of the possibility of hoisting Japanese colors, as the *Charleston* was a sister ship of the Japanese cruiser *Naniwa,* but this was not done. It was a dark and drizzly morning and as we neared the northern point we cleared for action and signaled the transports to drop astern and stand off shore, appointing a rendezvous on the coast of Luzon in case of separation. The *Charleston* stood down the western coast and passed slowly the principal town of Agana, but being unable to see either vessels or fortifications, proceeded a few miles farther to the port of San Luis d'Apra. The harbor was a difficult one to enter as a high rocky promonotory formed the southern boundary and a low coral reef made out so far from the northern that the entrance was quite narrow. No navigational aids were in place.

It was upon the southern headland that the charts located Fort Santiago. This elevated battery could be dimly made out among the trees and as we passed into the channel and as one after another of our guns could not be brought to bear the situation became exciting. A single three-pounder or a company of riflemen could have made it very unpleasant for us. We kept on and not a single gun was fired. We found out later, however, that the battery and fort had been abandoned some years before. Fort Santa Cruz was now directly ahead, a small, square, stone, box-like affair built on a low coral reef in about the center of the harbor. Just to wake things up the ship fired a couple of three-pounders above it and at 300-yards range. We got no response and after firing about a dozen more light shells, anchored and awaited developments. The transports were brought in and anchored, and P. A. Engineer H. G. Leopold came on board for temporary duty owing to the illness of our chief engineer.

In about two hours, or at 10:30, a couple of white European boats were seen coming off from the upper end of the harbor, one of them flying a large Spanish flag which trailed in the water astern. We could see the white uniforms of two officers and the rail was crowded fore and aft with our people, watching the slow Spanish stroke bring the boats alongside. The visitors proved to

be the captain of the port and the health officer, both of the Spanish army. They were at once shown below to the cabin by Mr. Blocklinger. The captain of the port inquired as to the details of our visit, and the doctor, the health of the ship. Captain Glass had assumed that the garrison knew of the declaration of war; finding, however, that the situation was not understood, he informed them that a state of war existed and that they must consider themselves prisoners of war. They were then instructed to return to Agana under parole and to request the governor to come on board as soon as possible. During the latter part of the afternoon the same officers returned bringing a letter from the governor stating that the laws of his country prevented him from going on board any foreign man-of-war but that he would be happy to meet Captain Glass ashore in his office!

Preparations were at once made for a landing party and bright and early the following morning we started from the ship. Lieutenant Braunersreuther was in command, Ensign Evans acted as aide, Lieutenant Myers, U. S. M. C., had his marine guard and I the ambulance party. Braunersreuther and Evans pulled directly into the landing while the rest of the party was left to round up the expedition. We had but one steam launch and spent the greater part of the morning, in a drizzle of rain, cruising around the bay embarking and towing two companies of Oregon volunteers and their equipment. Just as we had everything ready, we made out Braunersreuther and his party returning in the dingey signaling, "We have them," so our trouble was for nothing and the march to Agana was off. We got back to the ship a little after noon and in time to see the United States flag hoisted over fort Santa Cruz, to hear the twenty-one gun salute and the bands of the California and Oregon regiments play the national air. We still had the garrison to secure and the same party with our marines, but without the soldiers, left the ship at one o'clock. The steam launch could take us only as far as the coral reef which was about half way of the distance of three miles. In crossing the reef, it was necessary to disembark our people and to push the boats over the coral and through about a foot of water.

We could see the Spanish soldiers sitting on the low wharf dressed in blue and white cotton uniform with broad brimmed straw hats, each with his rifle between his knees. They were over

twice our number but, fortunately, seemed to take little notice of us or to be inclined to improve the opportunity of our disadvantageous position. As soon as we had landed, which was without opposition, the marines formed company on the ground facing the wharf and troops. On one side of the wharf fifty-four Spaniards under command of two lieutenants were drawn up and opposite them a native company in the same uniform. The troops were at once disarmed and the Europeans embarked. Commencing on the right, each soldier's gun was taken from him, examined, tallied and placed in a cutter. In all fifty-two mausers, sixty-two Remingtons, also two swords, two revolvers and two Spanish flags were captured. Our marines presented arms to the Spanish officers as they gave up their swords. The native guard was not embarked. We then returned to the ship, pressing a sampan into service in order to carry the extra people, and arrived in time for dinner.

On account of the lack of space on board the captured officers and men were later in the evening sent over to the *City of Sydney* for safe keeping and transportation. Shortly after our return to the ship the governor and the remaining officers of the garrison came on board and were also sent to the *Sydney*. The officers naturally seemed downcast, both at the prospect of leaving their families on the island and in rather uncertain circumstances, and at the thought of what the future had in store for them. The governor had previously been in charge of the province of Cavite, and it was said that he had ruled the natives with such severity that he was particularly anxious to remain a United States prisoner of war and not be turned over to the insurgent natives. Many of these officers seemed to believe that they might be executed by our authorities on their arrival at Manila, or, at the best, be returned to Spain where a court-martial would probably adjudge a like sentence. I believe most of these officers returned later to Guam and removed their families, who had suffered only minor inconveniences during their absence.

We coaled from the *Peking* in ship's boats and one small lighter, and on the following afternoon, June 22, left for Manila. Like the usual cruising in the Pacific in tropical latitudes the trip was uneventful and the weather and sea perfectly quiet. After passing Anson shoal we sighted Cape Engano at the north-

east extremity of the island of Luzon on June 28. Shortly after a vessel was reported ahead which was soon made out to be a man-of-war. It being possible that she was a Spanish vessel general quarters was sounded, the transports again dropped astern and we stood on to meet her. The forest of ventilators and the familiar lines of the *Baltimore* could soon be made out and shortly after we both stopped, lowered boats and exchanged news. From this position, which was approximately that of the action of Lord Anson in the *Centurion* and the Spanish galleon *Covadonga,* June 20, 1743, we began the last leg of our journey. We passed around the northwest end of Luzon and down the China Sea. A stiff monsoon was blowing and there we encountered the worst weather of the entire trip. At 11:00 A. M., June 30, we passed through Boa Chica and into the bay of Manila, following the *Baltimore's* lead. When passing Marivales Bay we could see four German men-of-war at anchor, one being the flagship *Kaiserin Augusta.* This vessel got underway and followed us into the anchorage. While some distance from the fleet we fired our salute to Rear Admiral Dewey which was answered by the *Olympia.*

The fleet consisted of the flagship *Olympia,* the *Baltimore, Boston, Raleigh, Concord, Petrel,* the revenue cutter *McCulloch,* the purchased collier *Nanshan* and the purchased dispatch vessel *Zafiro.* The men-of-war formed a line off the Cavite arsenal and the auxiliaries and some steam and sailing colliers made a second line inshore of them. We rounded under the stern of the *Olympia* while her band played "El Capitan" and all vessels cheered. Our transports anchored with the inside line and we were given a berth just astern of the flagship. We were all much interested in the wrecks in the bay and within a few days visited them all. The flagship *Reina Cristina* lay about 400 yards off the sea wall, gutted by fire and sunk with her rail awash. We entered in a dingey through a gun position and pulled around the spar deck and under the forecastle. Marks of shells and shell fragments were numerous but the effects of fire and red rust were the dominant notes. Brass fittings, port rims, canopy rails and all things valuable had been removed by the natives and even the copper rotating bands of recovered shells chipped off. The *Castilla* was a wooden vessel. She was lying a mile farther out,

a burned and sunken wreck, with the charred remains of her spar deck awash. Four 5.9-inch guns glared out at awkward angles across the bay, and two of her masts, black and tall, were standing. Near Sangley point the *Don Juan de Ulloa* rested easily on the bottom, the poop a couple of feet under water and the forecastle the same distance above it. Her condensers had been removed before the fight and her port battery had been mounted ashore, so she fought and sank, moored head and stern, and using her starboard battery only. Her three lower masts stood for months, until the *Boston* took out two of them to replace her own topmasts. This vessel had not burned and we frequently went over to her and had swimming parties from her forecastle.

Inside the arsenal point, in Bacoor Bay, lay the *Isla de Cuba, Isla de Luzon, Don Juan de Austria, Lezo, Velasco, Duero,* and *Argos.* They had been burned by our own people and lay about 300 yards off the navy yard, and possibly 200 yards apart. The *Cuba, Luzon* and *Austria* were later raised, taken to Hong Kong and fitted out and retained in our service. The *Velasco* had been undergoing extensive repairs, had her decking off and boilers and guns ashore. She was a mere shell of 1,100 tons and lay, rail two feet out of water, off the coal pile. The *Lezo* was a little thing. A shell of rusted iron, she had been under repairs, and took no part in the action and when burned her bottom was completely blown out by the explosion of her magazine. The *Duero* had been in action although she did little more than to assist in rescuing the crew of the *Reina Cristina.* She had been used as an *aviso* or dispatch vessel and resembled our old *Alarm,* with an enormous ram and bow gun. She had been burned, as had been the others of this group, by a party from the *Petrel* under command of Lieutenant Hughes. The breech blocks of all guns on these vessels had been promptly removed by the Spaniards when their vessels were abandoned. Another small vessel burned and sunk in Bocoor Bay was the survey ship *Argos* of 500 tons. After the battle, and before the *Petrel's* destruction party had arrived, the Spanish authorities requested that she be saved as she was not a combatant vessel and had many valuable instruments on board. This request was granted, but through error, the *Manila,* a troop transport of 1,100 tons, was saved and the little *Argos* suffered the fate of her sisters. The *Manila* had some

half starved cattle on board when the *Petrel's* party arrived and there was some difficulty in getting on board and in clearing them out.

Across the bay, opposite the town of Las Pinas, lay the burned hulk of the trans-Atlantic liner *Isla de Mindanao,* a ship of 4,200 gross tons, hard aground and gutted by fire. She had been loaded with a full cargo of cigars and other island goods and was about to sail for Spain but on the morning of May 1 left her anchorage off Manila and cast her lot under the protection of the fleet. This vessel was armed but there seems to be some question as to whether she fired or not. At all events she was in the line of the enemy and before the close of the battle was seen attempting to escape along the shore line by Las Pinas where she grounded in shoal water. The *Concord* was signaled to destroy her but it seemed a pity to do so and Captain Walker signaled to the flagship that he could pull her off. A second peremptory order compelled obedience and a six-inch shell from one of the forecastle guns raked her fore and aft and set her on fire. A few six-pounders completed what had been begun. This prize was valued at about one million.

I think that the first thought of many of us, as we looked upon the wrecks of the *Cuba, Luzon, Austria* and *Mindanao,* was: Why were not the first three pumped out and saved and the latter hauled off as a prize? The answer was that Admiral Dewey's orders were to capture or destroy. He had little idea on the evening of May 1 that the occupation of the bay and islands would be permanent or that our fleet would remain longer than would be necessary to complete all activities against the Spanish. There was, of course, no vision of the splendid future he had opened. He intended to burn the navy yard on May 2 and barely refrained from doing so, while awaiting the return of the *McCulloch* from Hong Kong with word from the United States. It was for this reason that no attempt had been made at first to save property that might later fall into the hands of the Spanish.

I visited the navy yard on July 1. Our people were in charge and the various departments were being carried on by details from the ships, chiefly from the *Petrel,* which on account of her shallow draft, was anchored inside and directly off the yard. Native workmen were around and quite an air of activity prevailed.

Much stuff had been taken out by the natives during the early hours and days after the capture and evacuation. As we were at war with the Spanish and not the native population, and as the latter were somewhat in the position of allies, Dewey had given to certain Filipino officers representing Aguinaldo a small amount of small arms and ammunition from the stores at Cavite. Just outside the navy yard gate in Cavite, and facing the parade ground, was the long line of the water battery, its barracks and storerooms. Many of these rooms were quite full of Spanish sailors and soldiers, prisoners of the Filipinos, whose sentries guarded them and who saluted us as we passed. There were also several large buildings in Cavite town which were used as prisons. The Spaniards were not treated with severity or hardship but were on very scanty rations and undoubtedly had a hard time of it. The enlisted men were glad to sell buttons, cap ribbons and various articles through the bars, undoubtedly to obtain money with which to buy food. The navy yard itself was fairly well equipped. A foundry, boiler shop, storehouses well stocked, fair machinery and a large boat shed and shop were in operation. There was a small slip way capable of hauling out a vessel of 400 tons and a huge pair of shear legs was in place on the sea wall near the boat landing.

The Spaniards had for some time past been slowly building up a plant on Subig Bay and had intended later to abandon Cavite on account of the gradual shoaling of water there. The largest building in the yard was the "palace" containing, above, quarters for the commandant and certain other officers, and below, offices and storerooms. All rooms were in considerable confusion and a shell entering the roof had completely wrecked one of the commandant's living-rooms. In front of the palace was a statue representing El Cano. This was supposed to be of bronze and it was said that Admiral Dewey had intended to send it home but on finding it made of painted wood left it in place. Opposite this was a very small chapel. Our troops were disembarked at once and occupied buildings in the yard and immediately outside. No offensive was made at this time. On July 17, General Greene and more troops arrived, and were landed at Paranaque the next day. The merchant and auxiliary fleet became much augmented.

We had heard on our arrival that Admiral Camara was coming

out with a squadron to attempt the recapture of the islands and that, on July 4, he had passed through the Suez Canal. With the expedition was the battleship *Pelayo,* of 9,900 tons and two 12.5-inch guns, the armored cruiser *Emperador Carlos V* of 9,100 tons and two eleven-inch guns, other smaller men-of-war and supply and troop transports, fifteen in all. One of the troop transports was the *Covadonga,* a vessel of the same name as that of the galleon captured by Anson in these waters in 1743, and it was assumed that now, after an interval of 155 years, the younger branch of the English speaking people was about to repeat this performance. On paper, Camara's squadron was more than a match for us and we were waiting the arrival of the monitors *Monterey* and *Monadnock* to give us some big guns. It was not until the latter part of July that we heard of Camara's return through the canal, being forced to do so by a proposed demonstration against the coast of Spain by a squadron under Admiral Watson. The news of the victory at Santiago was brought down to us by the Japanese cruiser *Naniwa* and signaled by the flagship to the fleet. The *Monterey* and her collier *Brutus* came in on August 4 and were given a good reception. She would have arrived well before Camara, anyway.

During this time we were blockading Manila, which proved to be rather tedious. Our fresh food, except a few chickens, eggs and fruit, came down occasionally from Hong Kong in the *Zafiro* with mail until, just before the fall of the city, two cold-storage vessels came in from Australia with frozen beef and vegetables. One of these, the *Culgoa,* was immediately purchased for the Navy. At night searchlights played from the guard ship, all other lights which might show outboard were screened and picket boats patroled our fleet line. These picket boats were both the ship's steamers and captured Spanish launches or small bay tugs. Each ship had one or more of the latter under her charge. That of the *Petrel* was called *Petrelita,* that of the *Concord, Concordia.* The *Charleston* had the *Este* and the *Norte, Sur, Oeste, Barcello* and others were with our vessels. The admiral had the large white launch *Undine* which had belonged to the captain of the yard.

Day after day we looked over to Manila and at night counted the bright electric lights, commenting if there was an extra one

or if one were missing. There were usually thirty-eight. From that distance, Manila looked little more than a white line with a few church domes and spires rising above it. With glasses we could make out the Luneta battery of 9.2-inch guns the archbishop's palace, the cathedral and the sharp spires of San Sebastian church. On July 25 the *Newport* and other transports arrived bringing General Merritt, and the army moved from quarters in and around Cavite and occupied trenches a few hundred yards south of Malate. From them the Spanish parallel trenches and Fort San Antonio d'Abad, called Malate, were engaged. These trenches were largely improvements of the already existing insurgent works, they having been asked to vacate them in our favor. On July 31, General MacArthur arrived and on the same night the enemy made an attempt to stop further work and to drive the Americans back but were repulsed. Some friction cropped out with the natives, who felt that they had not been sufficiently taken into military confidence.

The Spanish were accustomed to open fire at certain definite hours and we came to look for their activities each day and night as those times arrived. At about nine in the evening their field artillery would fire a few rounds and, due to some peculiarity of powder, the trajectory of each shell would be plainly outlined in sparks which made quite a festive display. On August 7 Admiral Dewey and Major General Merritt informed the Governor General and the Captain General of Manila that hostilities directed towards the capture of the city might commence at the expiration of forty-eight hours, and on the ninth a demand for the surrender of the city was sent. To this a reply was received from the governor general requesting a delay to enable him to cable home for instructions. This request was denied and the general attack was set for August 10. On that morning, however, General Merritt had requested a further delay and the attack was postponed until the thirteenth. Early on that morning, and just as we were getting under way, the British cruisers *Immortalite* and *Iphigenia* came over from the neutral anchorage off Manila and, passing through our line with bands playing, anchored just outside the merchant fleet off Cavite. The Japanese cruiser *Naniwa* with some refugee ships followed. The German, French and other vessels, both men-of-war and merchant, left

the same neutral anchorage and hauled off to the northwest across the bay. General Merritt left his quarters on board the *Newport* and embarking on the *Zafiro,* passed us on his way to the beach at Tambo, acknowledging our cheer by raising his hat. Some of the troops were landed just beyond Malate from the chartered sidewheel steamer *Quong Hoi* which passed in close to us.

It was an overcast drizzling morning. According to arrangement the *Charleston* led the reserves composed of the *Baltimore,* the *Boston* and the *Concord* and cruised slowly back and forth off the mouth of the Pasig River and Luneta Battery. The *Monterey* was stationed directly off the battery and was in a position to shell the city. The *Olympia, Raleigh* and *Petrel* took station off Malate. At 9:36 the *Olympia* opened fire at the fort and trenches beyond with a couple of six-pounders, followed by her five- and eight-inch guns. The *Raleigh* and *Petrel* followed. No reply was received from the fort and only about sixty shells were fired. The range was about 3,500 yards. One shell from the *Olympia* burst inside a shed within the fort's walls and a column of black smoke shot high into the air. We could see our troops running along the beach driving the enemy into the city and later enter the fort and run up our colors. The *Callao,* Lieutenant Benjamin Tappan, and the *Barcello,* Naval Cadet W. R. White, ran close to the beach, firing continuously and doing excellent work. At 11:20 a large white flag appeared over the southwest bastion of the walled city and we were piped down and had a little cold luncheon in the wardroom.

All communications with the enemy had been through the Belgian consul, Mr. Edouard Andre, and soon his launch was seen coming out to the flagship. Later, several trips were made and Lieutenant Brumby, the flag lieutenant, went ashore with a small signal party. We then expected momentarily to see the large Spanish flag hoisted over the Manila arsenal at the northwest end of the walled city come down, but it floated tantalizingly in the light breeze until 5:45 when it was slowly lowered and our stars and stripes went up. Each ship in the fleet at once saluted with twenty-one guns, all bands played the national air and all ships cheered. This was the first time that the Spanish colors had been lowered in Manila since May 31, 1764, when the islands were returned to Spain after their capture on October 7, 1762,

by Sir William Draper and Admiral Cornish. Late in the afternoon, and about the time the flag was hoisted, the German flagship *Kaiserin Augusta* got under way and steamed rapidly out of the bay. Little attention was paid to this at the time but it was later learned that the Spanish governor general had gone on board and had made his escape from the city in this manner.

To us in the fleet, it seemed rather a pity that there had been the necessity of any real fighting and consequent loss of life in the occupation of Manila. Admiral Dewey could probably have obtained the surrender at any time after May 1 but could not, of course, have landed a sufficient force to properly protect and police it. The Spaniards themselves desired some military demonstration in order to represent to the mother country their zeal in its defense. Shortly after May 1, various foreign men-of-war from time to time visited the bay for the purpose of observation and in the interest of their citizens. Their anchorage was directly off the mouth of the Pasig River and with them were several merchant vessels having on board refugees and foreigners who preferred remaining afloat to the uncertainties of life in Manila at that time. While French, Japanese and Austrian men-of-war only occasionally came in, the German squadron remained in considerable strength until after August 13.

At this time the following German vessels were stationed in far eastern waters. The flagship *Kaiserin Augusta,* an armored cruiser of 6,300 tons, had been built in answer to the United States fast commerce destroying cruisers *Columbia* and *Minneapolis* and was a very speedy vessel; the *Deutschland* and the *Kaiser* of 7,700 tons, each with eight 10.2-inch guns and a heavy belt, (these vessels were sometimes called battleships and sometimes armored cruisers); the *Irene, Gefion* and *Prinzess Wilhelm,* cruisers of 4,400 tons; the *Arcona,* a cruiser of 2,300 tons; the *Cormoran,* a cruiser of 1,650 tons; and the surveying vessel *Meowe.* While all these nine ships were never in the bay at the same time, their number seldom dropped below five, and of course the entire German fleet could have been mobilized whenever desired. The relative strength of the two fleets was, therefore, fairly equal, with the German advantage of heavy guns, armor and men. At one time the transport *Darmstadt* came in with 1,400 men to be used as relief crews and remained in the bay for four weeks. The atti-

tude of the Germans during the time previous to the fall of the city was irritating and discourteous and very annoying to Admiral Dewey. I think he was far more concerned over the possibility of further international complications than with any other question with which he was confronted during his entire period of duty in the Islands. Their vessels were constantly leaving the foreign anchorage off Manila and going to Marivales Bay, which they had made their headquarters, and frequently communicated between the two anchorages by night searchlight signals thrown on the clouds. They disregarded what Admiral Dewey regarded as his proper orders of blockade; they communicated with the Spanish authorities in Manila; they landed men in Marivales Bay and took possession of the quarantine station; they sent ships to Subig Bay and interfered with insurgent operations against the Spanish garrison at that place. They complained of, and evaded if possible, the stopping of their vessels when entering or leaving the blockade, and persisted in doing quite as they pleased. These and many other acts of naval discourtesy angered and annoyed the entire fleet. There were rumors that German gunners were in the trenches ashore and that munitions and stores had been landed but these were not believed and were probably not true. Their boats frequently passed to and from the ships and the Pasig River, and we could often see a string of boats being towed in.

I had occasion to visit Admiral Dewey several times and found him to be most pleasant and delightful to meet. He put a visitor at his ease, led the conversation in an easy and masterful way, was unusually polite and agreeable and impressed one with his great vigor and strong personality. Officially, he was quick, to the point, rather intolerant of advice or criticism, and, in case of negligence, hard and firm. The question of fear, of expediency, or of indecision never entered into his conclusions. He was preeminently a leader of men, admired and respected, inspiring absolute confidence and admiration. Two stories were current in the fleet at this time and may give an impression of the admiral's force of character and his attitude toward affairs of which he disapproved. The German flag lieutenant one day visited him and stated that Admiral Von Diedrichs was annoyed by the stopping of German men-of-war entering the blockade of the bay

and that he expected to be relieved from its application to his ships, adding something which the admiral took to be a threat of force. Dewey bounded out of his chair and replied, "Tell your admiral that the blockade will be strictly enforced against German as well as other vessels and that I am perfectly willing to meet his squadron in action at any time." The other story related to the army gunboats which General Otis had equipped for service on the river Pasig. They were the *Napindan, Laguna de Bay, Corvadonga* and the launch *Oeste.* They were protected with railroad iron and plates and the *Napindan* looked not unlike a small edition of the *Merrimack.* Dewey had protested against their operating in Manila Bay but occasionally one would do so. Finally Dewey is said to have sent word to General Otis that if another one of his gunboats came out of the Pasig River he would sink her. I do not know the truth of these stories but they were believed at the time.

During the month of August, I called on the admiral with the *Charleston* calling committee. He was sitting in his wicker chair on the quarter-deck as was his custom, when we were announced and introduced by Lieutenant Brumby. As we were shaking hands the admiral said to me, "Why this must be Ammen." I hardly expected such a greeting. He had sailed with the late Rear Admiral Ammen during the Civil War, and my father was at that time in command of the *Monocacy,* then acting as base supply ship at Shanghai and the only ship of the Asiatic fleet not present at Manila. Admiral Dewey then said that he had just received a letter from Admiral Ammen congratulating him on his victory but saying that he thought his position was still a dangerous one, and that he had given him some good advice on how to "carry sail." The admiral told us what reliance he placed on the monitors *Monterey* and *Monadnock* and how he would have been willing to fight anything on the station with them. He spoke of his regret that there had been loss of life in the occupation of Manila and how he thought it could have been avoided. Speaking of Camara he told us that he had intended to fight him off Singapore if possible, but that if the monitors had not arrived in time he would have engaged him in the bay just inside of Corregidor. He spoke of the battle of May 1 and said, "If you believe in miracles you must accept the perfect immunity of our

fleet as one. God certainly was on our side." Concerning the German attitude he was quite bitter and said he would have been glad to have engaged their fleet except for the resulting international complications. He spoke very freely and interestingly and was delightfully entertaining.

On the day following the surrender of the city, Captain Chichester of the British cruiser *Immortalite* and senior British officer present, saluted the flag at Manila with twenty-one guns and the United States flag at the main. None of the vessels representing other nations, excepting the Japanese, did this for some days, and the Germans not for some time longer. I think the cruiser *Irene* came down from the north especially for this purpose sometime in the fall. An Austrian vessel also came to Cavite before the end of the year, anchored, ran up her jib, fired a salute and immediately left the bay. Just after the British ship had saluted, Admiral Dewey, in courtesy, sent word to Captain Chichester by international signal that he could get what fresh meat and vegetables he wanted by sending his boats to the cold-storage vessel *Culgoa* which had that day entered the bay from Australia. As this was a great privilege, Captain Chichester gladly accepted. Several German and French vessels anchored near by must have caught the signal but were not included in the invitation. Coming so quickly after the salute to the flag a probable inference must have been drawn.

Immediately after the fall of the city, Captain Glass was made captain of the port with Lieutenant Braunersreuther, Lieutenant Myers, U. S. M. C., and Ensign Moffett as aides. Lieutenant Braunersreuther soon succeeded Captain Glass and held the position for many months, living with his family in the house and office of the captain of the port on the Pasig River. Lieutenant Myers came back to the ship after the Spanish vessels in the river had been secured and registered. Ensign Moffett raised several burned and sunken vessels which were obstructing the channel. The small gunboat *Bulusan* and the transport *Cebu* were raised by him with a small working party from the ship. This work was performed by him in an entirely satisfactory manner by improvised methods and in defiance of more extensive procedures recommended by those skilled in that kind of work. In these efforts Ensign Moffett contracted malarial infection which resulted in his being invalided to the United States.

The *Charleston* remained off the city as station ship, the remainder of the fleet returning to the old anchorage off Cavite, until the latter part of September when we were ordered in our turn to Hong Kong for docking and repairs. I went ashore a few days after the surrender to visit the "Pearl of the Orient." Spanish soldiers were much in evidence and their officers wore their side arms. The universal uniform was a blue and white striped suit of cotton worn without much attention to fit. The stripes and devices of the enlisted men were pinned on and the hat was a large straw affair, turned up in front with the name and number of the organization painted in yellow on a black band which surrounded it. Their appearance was not smart and physically the men were rather small and sallow and showed the effects of their duty in the tropics. They contrasted in a marked manner to our own big, blue-shirted volunteers as they passed on the streets. Both officers and men seemed to take the whole affair as a matter of course and no trouble of any kind resulted. We had heard stories of the low state of provisions in Manila, of horse flesh being sold on the streets, etc., but no evidence of distress was visible to us. The Spanish garrison was returned to Spain in various Spanish vessels which, within the next few months, called at Manila for that purpose, and the American occupation of the islands settled down to an accomplished fact.

A FOUR-TO-SEVEN-YEAR ENLISTMENT

By Lieutenant Commander E. S. R. Brandt, U. S. Navy

DURING the last ten years nothing has been so much tinkered with in personnel as has the term of enlistment. The net result has been a return to the situation as it was in the beginning: viz., the straight four-year enlistment with a present minimum age at enlistment of eighteen years. Enlistments are no easier to get than they were then, while the percentage of second and third cruise men in active service appears to be even less. Reënlistments are at a low ebb.

Has the term of enlistment anything to do with the Navy's failure to create a permanent personnel? It is believed that just the idea of a *term of enlistment,* no matter how long or how short, is a deterrent to recruiting, principally because of the hard and fast nature of the bargain involved. It is, after all, a contract with labor, and neither labor nor business executives tend to keep contracts from a theory of honor alone, when a practical mutual advantage or disadvantage is to be considered in affecting readjustments. The tremendous power given the Navy to enforce its enlistment contracts, and its inability to depart from the letter of the law are, even in the abstract, ghostly menaces to the free spirit of young America seeking its future.

The young American does not always think of his Federal Government as a wise and helpful employer. He has seen too much of minor politics and police government with which he associates Federal Government. Romantically, the Navy appeals to youth. A closer inspection of the offer to join the Navy reveals the distasteful hard and fast contract of enlistment which removes considerable of the romance at the very start.

Youngsters do not know their own minds, but they have an instinctive dread of surrendering their right to seize opportunity. They must feel themselves free to chase this willow-o'-the-wisp opportunity or they are restless. In this day of quick rise to fortune, four years seems a long time ahead to a youngster or

to a young man to tie one's self to any particular job. There may always be a better job just around the corner, or one that seems better anyway, and if that better job be not seized at the time, who knows but what impatient Fortune will pass by before "expiration of enlistment."

One trouble with the enlistment contract is that the man enlisting has so little to say about the terms. He has not reserved himself any rights nor has he had the privilege of helping to frame the contract. The feeling is that the contract is entirely for the benefit of the Government and that the man personally has not had much of a hand in planning his future. It seems one sided to those who have carefully considered it, and, to those who enlist for romantic, dare-devil, or ulterior motives, as a gamble, the awakening is sometimes painful when the romance ends on bread and water.

A form of enlistment in which each party reserves certain rights and which permits a discontinuance of mutual relations after a certain trial period would, it is believed, remove from the minds of men prone to enlist or reënlist, the feeling of rights surrendered which is basically the reason the average young man shies when he is confronted with demands to obey "a lot of officers and their rules" for four years.

Those who know their own minds enlist or do not reënlist for reasons sufficient unto themselves. Such people can be depended upon to take life as they find it and make the best of it anywhere. When the Navy gets them, they are valuable whether they stay four, eight, twelve, sixteen, or twenty years. There are many, however, who even after four years, do not know their own minds, yet who have great potential value to the naval service. It is to retain these men in the Navy until they do know their own minds and to assist them to the firm foundation of a useful and congenial career in the Navy that the proposal is made to change the term of enlistment from a straight four year term to a "from four-to-seven-year" term, subject to termination at the will of either contracting party at the end of the fourth, fifth, sixth, or seventh year.

Let us return for a moment to the psychology of enlistment. While the idea of *enlistment* is somewhat repugnant to the average young American looking forward to a bright future built by

his own brains and hands, men who have once served an enlistment perceive therein honorable service and a career with a practical if not too rosy future. While comparatively few reenlist, they seldom have any real repugnance thereafter for enlistment though they frequently exchange such a naval career for one in civilian life which gives them more personal comfort albeit with less pecuniary reward. Home ties have much to do with keeping down the number of reënlistments. Antipathy to reëlistment sometimes springs from a shadowy, though deeply rooted, sense of personal deprivation, engendered by a man's comparative isolation from his family or dependents who are spending the money which he earns. He has often good reasons to believe that his money is not spent as wisely as it would be were he always at hand. He becomes jealous of expenditures for comfort and pleasures he does not share. If he remains in the service, sixteen years cannot come around soon enough for him to retire on smaller pay in order to have full authority in, and also to enjoy, family life. Many do not remain in active service on this account. The better the machinist's mate, or commissary steward, or whatever rate, the more likely he is to have a family and the more likely the Navy is to lose him, especially in times of industrial prosperity. These sixteen and twenty year men, though they may not reënlist, are, however, always good boosters for the Navy after they leave it and have a tremendous influence in stimulating the attention of other young men toward enlistment, for they almost invariably show a term of enlistment to have been a start toward a future.

This article is not one on reënlistments, but, rather, one proposing a new form of enlistment which will make it worth while for a good man to remain in the Navy a longer time than he now feels he can do in justice to himself and his aspirations. It is believed, however, that the reënlistments can be greatly increased, even with the present term of enlistment, if more attention is paid to the following:

(a) Establishment of considerable centers of Government quarters at home yards or in the vicinity of such, for the families and dependents of enlisted men at sea.

(b) Regular schedules for cruising and work with definite return to the *same* navy yard or base for overhaul, leave and liberty.

(c) Schedule maintenance of machinery equipment and hull at navy

yards to prevent an overload of repair work by ship's company. It is discouraging to be forced to carry on competitive work in a group of other ships, if one's own ship is a lame duck. Men do not ship over on "floating workhouses" and they go out from one with an exaggerated idea of the amount of work to be done afloat which, in ships not in good condition, compares very unfavorably with the eight-hour day ashore.

(d) Prepayment of railroad fare from any home place to any port in which a man desires to ship over, if upon discharge, a man's *commanding officer so recommends on his record.* Many a desirable man is discharged and goes home with every intention of reënlisting, spends all his money in one, two, or three months, and not having the necessary funds nor the timely urge (through a follow-up system) he remains out. Were he able to report in to his old ship or any other ship without expense he would be much inclined to return instead of delaying until it was too late to enjoy continuous service benefits. Reporting in at a near-by recruiting station does not appeal, as his consequent future movements may or may not be to his liking. This prepayment of fare or transportation in kind should be allowed only to men returning to duty approved by the Bureau of Navigation. An expense allowance should be included. It is not believed that any considerable number of men with this privilege would abuse it to beat their way about the country at the Government's expense. A certain amount of preliminary correspondence between the man and his prospective commanding officer or with the bureau direct, involving his signature to a promise to report in, would probably reduce any loss to the Government to an inappreciable amount.

(e) Authority given to commanding officers to rate up men from second-class petty officers to first-class petty officers previous to discharge regardless of length of service as second-class. This will increase the bonus for reënlistment of petty officers and will encourage certain men a commanding officer thinks valuable to his ship, to ship over. It is believed that more authority given commanding officers *afloat* to rate men to fill vacancies will have a much better effect on discipline and efficiency than the long-distance bureau waiting list has, especially if exerted to increase reënlistments of desirable and needed men.

(f) Energetic prosecution of trade schools, and the maintenance of machine shops at navy yards manned by enlisted men in which minor repairs to ships can be made. There must be a little more shore duty for the "working man" as well as the "politician," shore duty which also produces benefit to the Navy in practical training and actual output of useful work. Whatever difficulties may arise because of sense of jealousy on the part of civilian employees can be composed. The constant threat of shift of work from yard shops to the shop run by the navy personnel should stimulate a healthy activity on the part of the civilian workmen. The prospect of shore duty and congenial work at a man's chosen trade will retain many good men in the service.

To return to the proposed term of enlistment, the subject of this article, it is believed that the present four-year term of enlistment does not return to the Navy enough benefit from a man after the Navy has trained him. At the end of four years few men are very valuable though their immediate and potential value is so much higher than that of recruits that it is usually worth while to keep them rather than exchange them for other recruits. Of course the physical and mental equipment with which a man starts is a considerable factor in increasing the length of time he is of real use before the expiration of his enlistment. This is a matter for the recruiting officers to attend to before a commanding officer has a chance to begin his educational work on a recruit.

However, a well worth while percentage do become valuable toward the end of their enlistment or have a very potential value, of which a commanding officer is the best judge. It is often apparent that a man's real usefulness is just beginning when he is discharged. Second cruise men are, as a whole, the most useful men in the Navy, the most versatile, and the group most worthy of development as petty officers. The fifth, sixth, and seventh years of a man's service are perhaps his best years, though his succeeding years, if he keeps on reënlisting, may be retained at an average near his high-water mark of "services returned" to the Navy.

A man does not always find himself during his first enlistment, yet men who have completed an enlistment are without doubt the most valuable material from which to build up service personnel. *The real problem is to get a fifth, sixth, and seventh year at least from desirable recruits.* To do this we should have a "four-to-seven" year enlistment which may be terminated at the fourth, fifth, sixth or seventh year at the will of the enlisted man or at the will of the commanding officer, if the man proves undesirable during any yearly period after the expiration of the fourth year. Each succeeding year after the fourth year should carry an increase of base pay of $5.00 per month. At the expiration of five years, a bonus for extension of enlistment of $100.00 should be paid regardless of rate; at the end of six years a bonus for extension of enlistment of $100.00 regardless of rate, and at the end of seven years a bonus of $250.00 to all

ratings below first-class petty officer, and $300.00 to all ratings above second-class petty officer for a reënlistment exactly similar to the first enlistment: viz., a four-to-seven year reënlistment. Payment of these bonuses should depend on a man's conduct and whether he is recommended by his commanding officer for continuous service.

The period between first enlistments and second enlistments, to carry with it all the benefits of reënlistments such as the bonus, rate then held, etc., should be reduced to sixty days. Between third and fourth enlistments it should be 120 days, except that any man who has been out more than this period may reënlist in his old rating without loss of continuous service but without bonus, at the discretion of his prospective commanding officer, provided he thereby fills a vacancy in an allowed rating on board.

It would appear at first sight that the form of enlistment outlined above was designed to keep a man on one ship or station all of his service life. Permanence of personnel is desirable but not permanence of dissatisfied personnel or especially ambitious personnel who desire to broaden their experience. A commanding officer may with propriety agree with a man who is getting restive around the end of the fourth, fifth, or sixth year of his enlistment to transfer him to a desired station upon postponement of discharge provided such transfer is approved by higher and competent authority. Such opportunities will most certainly appeal to men who would like to remain for another year or two in the service on some desired duty.

Now, at the end of four years, out a man goes whether he wants to or not, and the necessity for reënlistment for four years in order to remain in the Navy, reacting on a dangerous sense of freedom and interruption in his ordered life, deters many a man from reënlisting, who would, at this time, under a four-to-seven year enlistment, never seriously consider a discharge.

Four years has terminated the service life of many a good man who has formed habits that fit him for just the career and work he is leaving.

The expiration of these four years now forces on him a decision affecting his future which he is really unwilling to make and not always competent to make. By the end of the sixth or

seventh year he will have made his decision, most probably in favor of reënlistment, for he has given the Navy a good try and now knows just how good it is. If he doesn't like it then, he is surely entitled to return to civil life with whatever the Navy has done for him paid for in full.

Having proposed a method to increase reënlistments, a suggestion as to what not to do is also offered. So far as reënlistments are concerned, posters and "sales talk" (selling the Navy), have little or no effect on service men other than to exasperate them with the smugness, blatancy, and sophistry of such methods. No arguments based on the amount of money it is possible to earn by the time one is sixty-eight years old in the active Navy and in the reserve have the slightest weight in causing a man to ship over, because he knows well enough that he never gets more than barely enough to live on anyway, that it will always come in small installments, quickly dissipated, and that at sixty-eight he will not have anything laid by to brag about, anyway.

Pecuniary reward is an important consideration in the Navy, but it is too small to play up for enlistment purposes. A man reënlists with the full knowledge of what he is going to receive. His real reason for reënlisting is almost invariably for congenial work, it being understood that payment in stated and usual amount will be forthcoming.

Just because three-fourths of the men do not really know what work they want, the sincere desires of men for certain duties and ratings are often disregarded and men go out upon expiration of their enlistment disgusted with a situation which prevents them from going to other duty because they have made themselves indispensable in some job from which their commanding officers refuse to release them or because their ambitions are otherwise thwarted.

If there is anything we can do in the service to keep our best men, it is to reward ambition even if it temporarily cripples a ship's company. Some other part of the Navy will benefit even if one particular ship loses.

To talk about retirement privileges to men you want to retain on active duty is sheer cajolery and they know it and sneer at it within themselves. We do not want an increasing horde of

sixteen or twenty year men in the reserve. We should make the service a career for active men who have a reasonable sequence of sea and shore duty, which will keep them active and useful to themselves and to the Navy for the best part of their lives. We cannot keep such men at sea all their lives, however, and we should not cajole them with swivel-chair cant plastered on their bulletin boards in the form of wild-eyed posters and "selling the Navy" talk.

It is believed that recruits will enlist for a from four-to-seven year enlistment as readily as they will for a straight four year term since they are in no way bound to serve more than four years unless they so desire. The probability that many men will stay on for five, six, or seven years will materially reduce the number of new enlistments necessary. An experienced man is worth a half-dozen recruits and he might as well receive for this experienced service, the money now spent on obtaining several recruits from among which only one would take his place, the others being wastage.

NITROGEN FIXATION

By Lieutenant Commander C. H. Wright, U. S. Navy

ON FEBRUARY 27, 1924, the following article appeared in the Washington *Post* under the headlines "Force of Greatest Explosive Doubled—New Chemical Marvel Unites Oxygen and Nitrogen; Means Cheap Fertilizer":

Boston, February 26.—"'A chemical discovery, said to be one of the most important of the twentieth century, has just been made at the Fixed Nitrogen Research Laboratory at Washington,' Professor Arthur B. Lamb, of Harvard, announced here tonight.

"'The discovery is that of a new catalyst, which will bring about the permanent union of hydrogen and nitrogen atoms, and will yield about fourteen per cent of ammonia,' Professor Lamb said.

"According to the announcement, two great benefits will be derived from the new product. The United States, it is held, will have at its command an explosive twice as effective as that discovered by the Germans a few months before the start of the war. The American farmer will also, according to Professor Lamb, have the use of a fertilizer much cheaper and more effective than heretofore available.

"The new catalyst, it is contended, has far greater durability than that discovered by Haber in 1914, which yielded seven or eight per cent of ammonia."

The headline immediately arrests our attention but the first impression upon reading the article is that the man who prepared the headline hadn't taken the trouble to read the dispatch before starting to write, and that the reporter who got the story must have been somewhat dazed after bumping into that strange word "catalyst." We discover that the "marvelous union of oxygen and nitrogen" is in reality a combination of nitrogen with hydrogen to form ammonia; and we look askance at an announcement about any explosive that is "twice as effective as that discovered by the Germans a few months before the start of the war" because we know that the Germans did not discover an explosive that was of any practical use at that time.

So, we of the Navy aren't interested in the story. But shouldn't we be? That second paragraph of the dispatch is a statement

which is of far greater importance in relation to national defense than the announcement of the discovery of a new explosive twice as powerful as any previously known could possibly be. For the explosives which we commonly employ in military use are by no means the most powerful that we know. Other factors, such as stability, available supply, cost, sensitiveness, velocity of explosion, etc., guide us in the choice of a military explosive at least as much as its "power."

But, every explosive that we use contains fixed nitrogen, and fixed nitrogen is not found in the United States in sufficient quantities to supply our needs even in time of peace! Practically, our only domestic source of supply of this essential of national defense is the ammonia produced in our gas works and by-product coke ovens. The by-product ovens now constructed have a working capacity of approximately 180,000,000 pounds of ammonia annually—the equivalent of 535,590 long tons of sodium nitrate. The explosives program planned by this nation for 1919 would have required the consumption of 2,246,650 long tons of sodium nitrate or its equivalent,—and agriculture and industry require fixed nitrogen in huge quantities in war, as well as in peace. It is evident that this means that unless we develop a domestic source of fixed nitrogen all of our efforts in time of war would be fruitless if an enemy interrupted, even temporarily, our line of communication with Chile.

Now nitrogen in plenty is all around us. It forms approximately eighty per cent of the atmosphere by volume. However, nitrogen is an element which becomes fixed: i. e., enters into chemical combination with other elements,—with extreme reluctance, and which frees itself from such combination at the first opportunity. The violence of all our explosives is caused in large part by the disassociation of nitrogen from the elements with which it was combined.

The nitrogen of the air can be caused to combine with other elements under certain conditions. For example, nitrogen and the oxygen of the air combine in the intense heat of the electric arc and this method of fixation has been used commercially in Norway and Iceland. However, the power consumption is so high that the method is commercially practicable only when large amounts of electric current are available at very low cost.

A second method of fixation, the cyanamide process, was the principal source of supply for Germany during the early part of the World War. In this process calcium carbide is heated in an atmosphere of nitrogen gas and thus converted into cyanamide, $CaCN_2$. The cyanamide when heated with steam in autoclaves gives off ammonia, which can easily be oxidized to nitric acid. This method of fixation has been used to a very limited extent in the United States. The cost of nitrates produced by this process, although considerably less than by the arc method, is still much too high in this country to compete with natural nitrate from Chile or with artificially fixed nitrates from Germany.

A third process of fixation, known as the "Haber" process, produced the larger part of the fixed nitrogen needed by Germany during the last three years of the War. In this process nitrogen and hydrogen are made to combine directly to form ammonia by passing the mixed gases in the proper proportions at high temperatures and pressures over a catalyzer. The most serious difficulty in the attempt to obtain fixed nitrogen by this process is the discovery of a suitable catalyzer,—a catalyzer being defined as a substance which by its mere presence alters the velocity of a chemical reaction, and which may be recovered unaltered in nature or amount at the end of the reaction. This means that in this particular case the problem is to find a substance which, under the proper conditions of pressure and temperature, will by its presence in a mixture of hydrogen and nitrogen assist in their combination to form ammonia; and in order that the chosen substance may continue indefinitely to function as a catalyzer, it is essential that such substance does not itself undergo any chemical change.

It is understood that the Germans after much experimentation and practical experience obtained a yield of from six to eight per cent of the amount theoretically possible. The secret of the composition of the catalyzer used by them, and all details of the process, were most jealously guarded. After the Armistice the victorious nations spared no effort to obtain the details of the German method but the information obtained was incomplete, and apparently in large part unreliable. The destruction of the principal German Haber process plant by an explosion which occurred shortly after the Armistice greatly increased the difficulty in getting any trustworthy information.

The principal reason that our own huge nitrogen fixation plants at Sheffield and Mussel Shoals, for which we spent more than one hundred million dollars, could not be successfully operated was the lack of a proper catalyzer. A small group of research chemists have, since the Armistice, patiently continued the laborious research work begun during the War, gradually overcoming the difficulties in the way of successful operation of the process in our government owned plants, with the result, as stated in the dispatch at the beginning of this article, that a yield approximately twice that obtained by the Germans can now be secured.

Dr. F. G. Cottrell, director of the Fixed Nitrogen Laboratory, conducted by the Department of Agriculture, states:

"As far as we have been able to learn there is no country in the world which has an ammonia catalyst superior to that developed by this laboratory. A method has also been developed for manufacturing this material, which gives the necessary chemical control of the product and at the same time makes large scale production possible.

"As a consequence, we are now in possession of such reliable information concerning at least one ammonia catalyst and its manufacture that one of the principal obstacles to the successful operation of such plants as United States Nitrate Plant Number One at Sheffield, Ala., has been removed.

"Although the production of an efficient and dependable catalyzer was the necessary first step and key to the whole problem of synthetic ammonia, now that this has been accomplished the next and greatest opportunity for reducing cost of ammonia production lies in the manufacture of the pure hydrogen consumed in the process. At present the cost of hydrogen and its purification before it can be combined with nitrogen by the catalyzer represents about two-thirds of the cost of the ammonia produced."

If, as now seems probable, our nitrogen fixation plants can be operated to produce the nitrates required in agriculture more cheaply than sodium nitrate can be imported from Chile, the result will be a saving of millions of dollars annually for the farmers of the country. How fortunate it is that a step which so greatly benefits us in time of peace also vastly strengthens our position if war threatens, in that we will be assured of a domestic source of supply for this essential of modern warfare!

SAVING AND INVESTMENT

By Lieutenant Commander T. C. Kinkaid, U. S. Navy

1. Naval officers rarely appreciate the real value of saving money, perhaps because they do not have much from which to save, and are very seldom versed in the principles of sound investment. A youngster who enters the Naval Academy between sixteen and twenty years old can hardly be expected to have any great knowledge of finance and, from that time on, he lives apart from the business world and has very little opportunity to learn investment methods.

2. Many naval officers look upon Wall Street as a place where you can "take a flier" on a "hot tip"—just plain gambling—but have never studied the stock and bond markets from the investment point of view. The result is that, if he does have occasion to invest a sum of money, the naval officer is likely to be talked into a poor investment by a convincing salesman. This experience, while beneficial in the long run, is painful at the time and could be avoided by a little study of the fundamentals of investment.

3. Not long ago an officer told the writer that he had lost quite a large sum of money during the preceding year on stocks—not gambling in the market but on an investment. This officer had been advised by a relative of the "hard-headed business man" type to put all of his capital into the stock of a certain well known company. The after effects of the war resulted in the passing of dividends on this stock and the above loss resulted. It is inconceivable that such advice could be given by an H. H. business man and the advice certainly would not have been followed if the officer concerned had had any knowledge whatever of the fundamentals of investment. That officer has since studied investments and today spends a considerable sum of money each year for subscriptions to financial publications, statistical statements, reviews, etc., and the money is well spent because his principal is now well invested and is not likely to be reduced again in the above manner.

4. Even without previous experience or knowledge, it is possible to make a satisfactory investment if the investor will follow certain fundamental rules and will study the past records of companies, in the securities of which he intends to invest his money. It is perfectly proper for any depositor to ask the advice of his bank on any investment he intends to make, but few people take advantage of this service, which banks are glad to render even to small depositors. The most important rule of all is that of dividing any sum invested among several different types of securities; that is, keep all the eggs out of one basket. By so doing, it is possible, with a fair degree of safety, to get a reasonably high return on the money invested. It is bad business to put all available funds into one security regardless of its high standing, excepting possibly government and municipal bonds, which yield a low return.

5. It is also highly desirable to buy only those securities for which there is a ready market. It is then possible to liquidate at any time that money is urgently needed and, further, the owner may sell at a profit when the security goes up and buy other securities yielding the same return but whose price has not yet advanced with that of the securities held. Securities that are quoted daily on the stock exchange and are nationally known have a ready market, of course, but securities of small local enterprises are generally difficult to dispose of even when they may be considered sound investments. The securities of unknown corporations, often sold from door to door by very convincing salesmen, are not only difficult to dispose of but, in many cases, are worthless and should not be bought without first consulting a bank.

6. A new investor who has a sum of money to put into securities might proceed as follows with comparative safety. He decides to put half his money into bonds and the other half into preferred stocks (a new investor should avoid common stocks until he becomes able to judge of their value as investments). He decides to get five different bonds and ten different stocks (the number of different securities would depend upon the total sum to be invested) putting half as much money in each unit of stocks as in each unit of bonds to be bought because of the greater security of the latter. He decides to have each unit of stocks or bonds in a different corporation engaged in a different

type of business if practicable. From a study of the stock and bond quotations in the New York Monday papers he decides that he should average a yield of say six per cent on bonds and about seven per cent on the preferred stock—about six and five tenths per cent on the total investment.

7. He then checks off on the list of stocks and bond quotations a number of stocks yielding approximately seven per cent and a number of bonds yielding approximately six per cent. The records of the corporations whose securities he has checked off are then looked up and studied. The reports of all companies whose stock is listed on the exchange are available at any broker's office and extracts from these reports, going back to the time of organization of the company, are published monthly in a small manual for convenient reference by investors. By a process of elimination, he then selects the actual stocks and bonds he intends to buy. In making these selections, he considers the capital stock of each company concerned, the working capital, bonds outstanding, profit or loss in past years, surplus capital, dividend record in past years, margin of safety, that is, present earnings compared to dividend rate, and the unfilled orders on hand. In the case of bonds, he should consider the preferential standing of the bond and the equity behind it, that is the value of the mortgage securing the bond issue.

8. By such a process, he might select say one railroad bond, one public utility, one rubber company bond, one steel company bond and one sugar company bond. In preferred stocks his investment might be an equal number of shares in each of the following:—one railroad, one railroad equipment company, one chemical company, one steel company, one automobile company, one can company, one ice company, one woolen company, one clothing company and one biscuit company.

9. In order to check his selections he may then send his list of proposed purchases to two or three good bond houses or brokers, or to reputable investment services, requesting comment and advice. Such advice, when received, may lead to further investigation on the part of the investor in case any of the securities selected are not as sound as he considered them to be on first examination. This process, of course, may be reversed, the investor requesting recommendations from the brokers or bond

houses and making his elections from the list submitted. However, the investor should always personally examine the merits of a security before making a purchase, both to assure himself of the value of the security and to add to his investment knowledge.

10. There is no great mystery on the investment side of Wall Street. By following certain easily mastered rules, it is quite simple to make a sound investment giving a fair return on the money invested. The great difference between a comparatively inexperienced investor and one who has studied the market for years lies in the fact that the latter, through his greater knowledge, is able to analyze the equity behind a security and to obtain a greater yield on his money; that is, while the former selects a sound security yielding five per cent, the more experienced investor is able to pick out an equally sound investment that will give a return of six or seven per cent on the money invested and to profit by switches to other securities as prices change.

11. Saving money and investments are subjects not entirely apart from professional subjects, in that they have a direct bearing on the "health, happiness and comfort" of personnel. During the past few years considerable effort has been directed toward improving the morale of the service, but, excepting certain adjustments in pay, very little attention has been paid to the financial side of the problem. It is undoubtedly true that a man cannot work at maximum efficiency if he is continually harassed by family worries and the family finances are not the least of his responsibilities and worries.

12. Most people who have such worries are guilty of living beyond their means and many would be in much better circumstances if they had started at an early age to follow a systematic plan of saving, even on a small scale. Large industrial establishments have recognized in recent years the advantage accruing from prosperity among their employees and have encouraged economy and saving by such means as selling stock to employees on special terms, making special arrangements for the purchase of homes and providing banking facilities. In addition, such establishments have taken out group insurance covering accidents, sickness and death among employees.

13. The exact form that saving should take depends upon the individual circumstances. Life insurance, while not a "good"

investment from a strictly financial point of view, is by far the most important form of saving for all people, either in or out of the service. It is absolutely essential for a man with dependents. Even a man with flourishing business makes a grave mistake if he fails to take out life insurance. It sometimes happens that death is preceded by several months of illness, which, in itself is costly and which prevents the individual from properly looking after his business, which fails as a result and leaves his dependents destitute, except for such insurance as he may have carried.

14. For naval officers, who may be considered to have a reasonable expectation of a steady income for life, straight life insurance is the most logical form of protection. It gives the greatest protection for the least money. Twenty or thirty payment life, which becomes paid up before the age of retirement, is an excellent form of policy for a naval officer, but costs more than straight life. Other forms of life insurance are not economical from a naval officer's point of view. If he dies comparatively young, the two forms of insurance named above will give his dependents the greatest sum of money for any given sum invested. If he lives to old age with these two forms of insurance he will have paid out the least amount of money for the protection he has had throughout his life. In the latter case, an endowment policy maturing at the age of retirement would have provided him with an income in addition to his retired pay, but such a policy would have been expensive and would have failed to give his dependents the greatest protection for the money expended. Further, had he invested the same sum in sound stocks or bonds, reinvesting the interest received, he would be in possession of a far greater sum than that received under the endowment policy. An endowment policy is a poor investment, although it gives protection during the years before maturity. For the same money far greater protection can be obtained from a straight life insurance policy.

15. Under some circumstances buying a home is an excellent form of saving, and there are many other forms, but this article was intended to deal with the subject of building up an investment competence in addition to saving for life insurance, home building, etc. This requires two things; first, saving, and second,

investing. The man who merely hoards money has only a problem in plain addition, but the investor is trying to make two and two make five-and he does it, not today but in the years to come. Saving alone, say of $500 a year for a period of twenty-five years will produce $12,500. But by using investment methods instead of merely saving, at the end of twenty-five years, if the investor puts away $500 annually and invests both principal and income on the investment account at the rate of five per cent, he will have $23,864 instead of $12,500, or nearly twice as much as by the straight hoard method. If he has a thorough knowledge of the principles of sound investment and is skillful enough to invest both principal and interest at seven per cent instead of five per cent he will have $31,625, which is over two and one-half times what he would have had if he had merely hoarded.

16. To express this comparison in another way. The man who merely hoards $500 a year for twenty-five years will have enough to pay him an income of $625 a year, or $12 a week, if invested at five per cent. If this same amount of money had been used to build up an investment account at the rate of five per cent interest a year, he would have an income of $1,193 a year, or $23 a week, and with more skillful investing yielding seven per cent, his income would be $2,212 a year, or $52.50 a week, which is a very respectable income.

17. The man who saves with a view to building up a competence should save in accordance with a definite plan, should reinvest his income from investments as well as add to the principal, should save small amounts at regular intervals in preference to occasional large sums, and, above all, should constantly try to add to his knowledge of investments with a view to increasing the average net yield of his investment account.

18. Saving requires a certain amount of sacrifice of personal comforts or pleasures due to the cutting of expenditures for things that come under the heading of luxuries or non-essentials and can best be accomplished by a definite plan put into effect and conscientiously carried out regardless of the apparent magnitude of obstacles in its way. Every one can save something and even a very few dollars a month is well worth while. It is difficult to part with the cash left over after paying living expenses at the end of the month, in order to build up a savings account,

but, if a definite sum is immediately set aside upon receipt of the pay check, its loss will hardly be felt. The easiest and simplest way to save is to make a definite monthly allotment to a bank and thus avoiding the painful and tempting process of having the cash pass through one's hands.

19. A realization of the high cost of being poor should cause every one to make a real effort to save at least enough to keep ahead of the game and always have a reserve fund that can be called into action in an emergency. The poor man, having no reserve funds, who has to buy a suit of clothes must pay the full price for that suit, while the man with a small account in the bank is able to pay cash and get a discount of from five to ten per cent. Also, the poor man will get a cheap suit of clothes while the man who is a little ahead of the game will pay about twenty per cent more for his suit of clothes and get from fifty to seventy-five per cent more wear out of it, in addition to enjoying the feeling of being well dressed. Buying coal by the basket is more expensive than buying by the ton and this applies to many other necessities of life that can be bought more cheaply in quantity. Further, the man with the small reserve capital can buy when necessities are at their lowest market price, whereas the man who lives up to every cent of his income must buy when commodities are absolutely needed, regardless of the market price. The man who owns a house or an automobile, but who has no reserve funds, is likely to delay in effecting minor repairs to his front door step or radiator and a few months later finds it necessary to rebuild his whole front steps or buy a new radiator at a much greater cost.

20. It will be observed that the word "poor" in the above paragraphs is not used to express a comparison between the man who has only a small income and the man who has a large fortune. It is not a term applied to actual worth in dollars and cents but refers to the condition of the budget regardless of actual wealth. It refers to the available working capital compared to the total income, taken in connection with any scale of living. The possessor of great wealth, whose high scale of living requires current funds in large amounts, may find himself "land-poor" and the forced liquidation of such assets as real estate in a time of financial panic may result in a considerable reduction in his

wealth. On the other hand, the naval officer who has saved a few thousand dollars from his pay in the form of easily liquidated investments, cannot be considered "poor" in the sense in which this term has been used.

21. The cost of living is considerably reduced by having a small reserve fund available, but that does not mean that a large sum of money should be allowed to accumulate in the bank. A checking account should be only large enough to cover current expenses and any further funds available should be put to work to bring in additional income. Many people believe that it is not worth while to invest in stocks or bonds until a fairly large sum has been accumulated. This is not correct. Many excellent bonds can be bought in denominations as low as $100 and that sum will buy a share of preferred stock in a solid industrial organization. The investor who waits until he has $1000 or whatever sum he may consider large enough to invest, merely loses the interest on his money while he is accumulating the desired sum. This interest, if received, could be applied to savings for the next security to be purchased.

22. The small investor who saves according to a definite plan can increase his investment account by borrowing on securities already owned. For instance, if the investor owns one Great Northern 7s, 1936, bond and has saved, say one third of the cost of one Armour and Company of Delaware 1st 5½s, 1943, bond, by depositing the bond he owns with a bank, he can borrow enough to immediately buy the last named bond, paying six per cent interest on the money so borrowed. But the Armour and Company bond yields six per cent and the difference of four per cent is just so much in his pocket or in the savings accounts toward another bond. This process should be repeated, each time borrowing an amount that can be paid off by the money set aside in accordance with the investor's saving plan.

23. As experience is gained the investor will be able to guide his investments into the most profitable channels. Stocks and bonds that go up in price can be sold and the proceeds invested at a higher yield. The average level of investment yields will not be the same year in and year out. This level rises and falls in accordance with the ebb and flow of business activity. In the course of every two or three years, bond and investment stock

prices will be found to be cheaper than they usually are and this is the time to concentrate purchases and switch into the securities which happen to be most undervalued at the time. Just as there is a low point to the bond market every two or three years, so there is a high point reached when business is very dull and money is correspondingly plentiful and cheap. In the course of the stock market's history, it has been observed that these periods of high prices for bonds often coincide with periods when stocks are very cheap, because as a rule, when business is dull and money rates are low, industry is apt to be at an ebb and stocks will have been hammered down to rock bottom prices.

24. At such times, even good investment stocks are apt to be selling unusually low and it will often prove profitable for the investor to sell a part of his bonds and buy good stocks with the proceeds.

25. Briefly, everyone should save *something.* The savings should be invested in an interest bearing security rather than lie idle in a bank. And, the investor should constantly increase his investment knowledge in order to be able to combine safety and high yield in his investments.

DISCUSSION

Rigid Airships—United States Ship "Shenandoah"

(See page 161, February, 1924, PROCEEDINGS)

EDITOR'S NOTE: Lieutenant Commander Bartlett's article "Rigid Airships" contained several inaccuracies regarding the use of airships by the Germans during the World War. While the Institute does not accept responsibility for the accuracy of statements in individual articles, it is always to be regretted when errors, more or less obvious, are allowed to pass for publication.

Attention was first called to the errors by Rear Admiral Twining, in the form of a letter to the editor. This letter was referred to Lieutenant Commander Bartlett, and his reply, together with Admiral Twining's comments thereon, is published below. The publication of this correspondence will remove any erroneous impressions which may have been gained by those not in a position to form their own conclusions as to the facts.

REAR ADMIRAL N. C. TWINING, U. S. NAVY (RET.), *19 February, 1924.*—I note, in the article entitled "Rigid Airships—U.S.S. *Shenandoah*" in the current number of the PROCEEDINGS, what seem to be serious errors in historical statements.

On pp. 171-2, in the three paragraphs beginning with the quotation from Jellicoe, it is made to appear that airships played an important rôle in the battle of Jutland whereas the fact is that they played no rôle at all in that battle.

I have not Jellicoe's book at hand to verify the quotation but it is evident that it does not apply to the day of Jutland since it speaks of the Harwich force being shadowed by airships on the nineteenth—the battle of Jutland took place on May 31.

Von Scheer does not testify in his report that airships rendered him any aid at the battle of Jutland; while some airships were out that day (see *Monthly Information Bulletin*, O. N. I., January, 1924) they saw nothing of consequence and made no reports of any importance to Admiral Scheer. On June 1 airships made some reports of sighting British forces but that was the day after the battle.

The statement at the top of page 172 is entirely erroneous; the German Fleet had no information of the British Fleet other than that gained by surface vessels and was very far either from having a full knowledge of the enemy's units or from engaging when and where they wished.

Unless I have entirely misconceived the intent of the statements referred to they are totally erroneous and should be corrected; doubtless the author will gladly correct them if his attention is called to them.

LIEUTENANT COMMANDER H. T. BARTLETT, U. S. NAVY, *29 February, 1924.*—In regard to your letter of February 26, 1924, I am glad that my attention has been called to the errors in my article and to have the opportunity to correct them. I have the following corrections and comments to make:

On page 171, paragraph 3, the words "at Jutland" should be changed to "on August 19, 1916."

Paragraph 5—the words "at Jutland" should be changed to "on the morning after Jutland." However, Von Scheer does speak of the Zeppelins that were out on the day of the battle, May 31.

In regard to Admiral Jellicoe's opinion of rigids, I again quote from *"The Grand Fleet,"* page 32:

"The German Zeppelins, as their numbers increased, were of great assistance to the enemy for scouting, each one being, in favorable weather, equal to at least two light cruisers for such a purpose."

Page 450—"We had already had considerable experience of the value of Zeppelins to the German High Sea Fleet in this respect. That experience had fully confirmed the views put forward in 1913 on this subject at a period when, as Second Sea Lord, the Naval Air Service came under my supervision. These views were expressed on an occasion when the building of a fleet of Zeppelins was being urged on behalf of the navy. It was then pointed out with emphasis how great would be the value of such vessels for reconnaissance duty in connection with fleet movements. At this time the usual conflict was proceeding as to the relative values of Zeppelins and heavier-than-air craft, but the views expressed were that whatever future there might be for the latter as development proceeded, there was no likelihood of their having the radius of action necessary for scouting work in a fleet for some years, whereas the Zeppelin already possessed it. My apology for making mention of this fact is that it controverts the assertion so constantly made that the senior officers in the Navy were not alive to the value of aircraft before the war."

I will also refer to Von Scheer—*Deutschland's Hochseeflotte im Weltkrieg:* Page 233—At dawn, 5 A. M., June 1, *L-24* saw part of the Grand Fleet. Page 238—During the night *L-11, 13, 17, 22* and *24* went out to scout. Page 238—At 5:13 *L-11* reported the Grand Fleet. Page 262—When, at 2:22 P. M., I received word from *L-13* that at 1:30 it had sighted a strong enemy force, about thirty vessels, in the south, square 156, I decided to proceed against this force. Page 302—As heavier-than-air craft were still undeveloped at the beginning of this war, airships were indispensable to us. The great area which might be observed, the high speed and certainty, compared with surface observation from ships, gave us an important auxiliary.

The above is a rough translation. There are numerous other references to rigids, but I believe the above are enough to show the Commander-in-Chief's opinion of their value.

Referring to page 172 of my article, the German Fleet did fix the position of the Grand Fleet on June 1 by reports from their Zeppelins.

While I regret that my wording was such that my historic references were confused and I am glad to correct this, I still believe that the Zeppelins were of the utmost value to the Germans and that helium-filled rigids are absolutely necessary to our Navy.

REAR ADMIRAL N. C. TWINING, U. S. NAVY (RET.), *10 March, 1924.*—It is not entirely clear to me, from a reading of Lieutenant Commander Bartlett's letter just what corrections he proposes to make. There are three errors as to historical fact in the article:

1. p. 171: "The following quotation . . . . shows their value to the Germans *at Jutland.*"

2. p. 171: "Von Scheer also testifies in his official report to the valuable information received from Zeppelins *at Jutland.*"

3. p. 172: "The German Fleet, due to their airships, followed the Grand Fleet's movements throughout the day, and engaged them when and where they wished, with a full knowledge of the enemy's units."

Mr. Bartlett apparently proposes to correct the first two errors and the suggested alterations will accomplish the correction.

As to the third error, perhaps the most serious, there seems to be no direct reference to it in Mr. Bartlett's letter except this: "Referring to page 172 of my article, the German Fleet did fix the position of the Grand Fleet on June 1 by reports from their Zeppelins." This statement is sufficiently near the truth to be accepted without serious challenge but it cannot be regarded as a justification of the more comprehensive statement appearing in the original article which I have quoted above.

The fact is that aircraft played no part in the battle of Jutland and any statement that they did so is historically incorrect; any statement that they influenced or assisted the Germans in preparing for or conducting that battle is likewise historically incorrect.

I hope that both you and Mr. Bartlett will understand that I am not, in any degree, challenging the value of aircraft as auxiliaries to the fighting fleet. Mr. Bartlett is entitled to draw his own conclusions from a consideration of historical facts or from theoretical investigations and he is equally entitled to publish them without criticism from those who may disagree with him. It is only when historical facts are incorrectly stated that any one may suggest correction of the statements.

I am, in fact, in complete accord with the author as to the probable value of airships and I am aware that they were of great assistance to the Germans at times and that the British felt keenly their lack of them.

I am doubtful of the correctness of Mr. Bartlett's statement at the foot of page 172 that the Grand Fleet "ran a serious risk from submarines and mine fields whose positions they would have known if they had had aircraft," but the correctness of the statement may be held to be a matter of opinion rather than one of historical fact so it would not seem proper to suggest its elimination from the article.

That Admiral von Scheer had a high opinion of the value to him of airship reconnaissance is amply shown by the fact that he abandoned his plan of an attack on Sunderland (which he had been planning to make from the eighteenth of May on) in favor of the movement up the Danish coast which resulted in the battle of Jutland, for the reason that for the former expedition he considered it essential that he should have the benefit of air scouting and this was rendered impracticable by the weather conditions that prevailed between May 18 -30. For the movement to the northward he felt that he could dispense with aerial reconnaissance (although regretfully) since the land protected one flank and he had only his western flank from which to anticipate attack.

Athletics, Beneficial and Otherwise

(See page 1609, October, 1923 PROCEEDINGS)

CAPTAIN WM. H. BELL, (MC), U. S. NAVY:

I have read Admiral Niblack's most instructive and valuable article entitled, "Athletics, Beneficial and Otherwise," published in the PROCEEDINGS of October, 1923, and Captain Carpenter's discussion of it in the succeeding issue. These give me a background for the consideration of Admiral Niblack's discussion in rebuttal which appears in the December number of the NAVAL INSTITUTE PROCEEDINGS.

The third paragraph under "Some Suggestions" of this original article is the first place where his present line of thought is pointedly suggested. The hope therein expressed, however, is saved to general acceptance by the last few words, which I will take the liberty to italicize in quoting the paragraph:

"We have dentists in the Navy now and the world is moving, but I may be allowed to express the hope that we will not have to wait for a new generation of medical officers in the Navy to obtain recognition of the fact that there should be on the medical staff of the Naval Academy Gymnasium several osteopathic practitioners, *or similar mechanical manipulators.*"

The italicized words I am constrained to take also as offsetting that portion of the succeeding paragraph of the original article which reads, "It is as purely a mechanical process as tinkering with a machine, and requires the peculiar knowledge which osteopathy gives its practitioners and which is not required of medical officers." With further reference to this expressed point of view and with no intention of trying to substitute counter-accusations for discussion it is believed that while relation to the medical profession) but are inconclusive, and he is suffi- the osteopath is totally lacking in the background of training that is absolutely necessary to entitle him to specialize in a narrow way. This has been tardily realized by a number of this school, who are turning to equip themselves with a degree in medicine.

Captain Carpenter points to the fact that the Navy, through its Medical Department, is now sharing the benefits of what Admiral Niblack is

pleased to call a new generation of doctors in their appreciation and practice of physio-therapeutic methods. Also, for years, posture and its importance from a health as well as a military point of view have featured in the instruction given to midshipmen. It probably needs to be emphasized and carried a step further. This will be done not only for benefits derivable from posture *per se* but because of the consciousness, engendered by posture, of all that can be done by and for self in the interest of well being.

The co-operative relationship of dentistry to the medical profession cannot be properly mentioned as a precedent or used as a justification for the recognition of osteopathy as a co-equal and its association as such with the medical profession. The dental profession is strictly limited in its field and is guilty of no such assumptions as osteopathy.

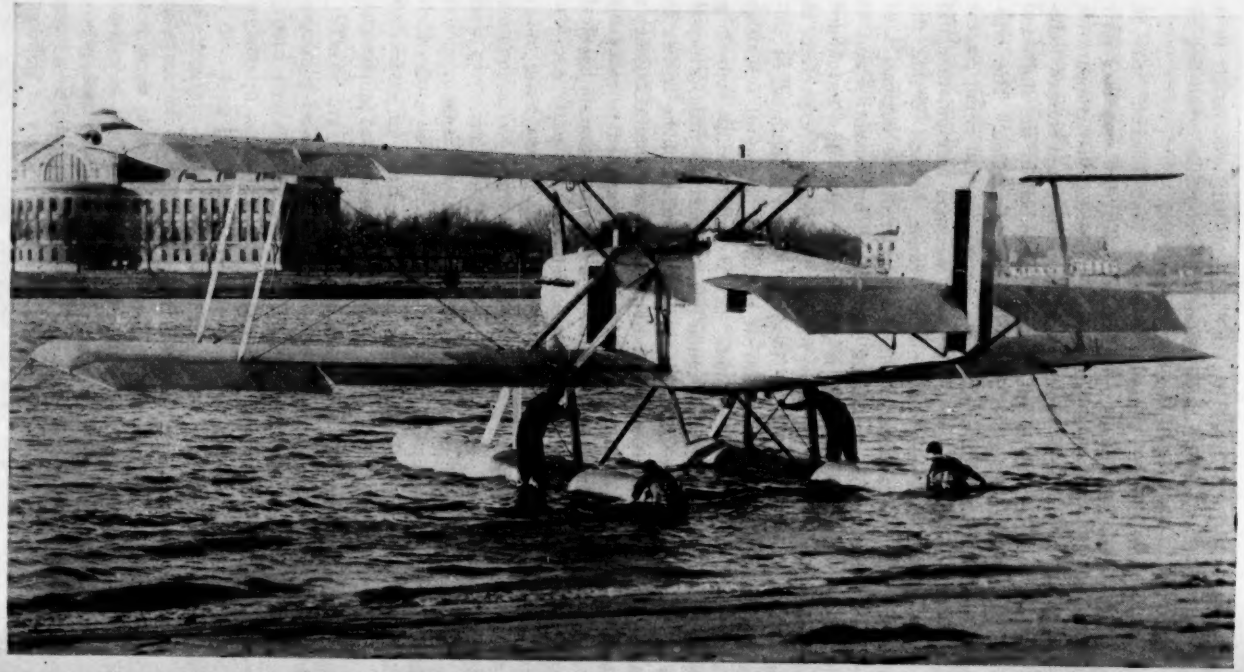
The admiral's brief for osteopathy is creditable but he renders himself liable to just criticism in chiding the medical profession about its ethics. His remarks are interesting from certain angles (the layman's, in relation to the medical profession) but are inconclusive, and he is sufficiently not a layman in a broad sense, (he is himself a member of a profession which has its code of ethics) to make some of his observations relative to the ethics of the medical profession a little surprising. It is this very consideration of ethics which the osteopath himself raises by his claims, as a block to the utmost usefulness of his methods.

Properly speaking, medical ethics applies to the internal conduct of the profession—the system of principles and rules of duty within itself as between its members and in relation to its care of the cases seeking its services. It is the custom of osteopathy and similarly limited practices to claim place among those whose science and ethics they deny. It is the assumption of cure-all possibilities by strictly limited methods which now gives and always will give justification for regarding them as partaking of charlatanism. The mere fact that they have practiced isolated truths does not alter the case, and the intellectual, not to say professional, dishonesty involved makes the exponent of one or another of them an uncongenial bedfellow.

There are various neglects of which all artistic, scientific, political, economic, business and religious groups are guilty—and these established groups endeavor to profit by the protests of those who point to their neglects in a manner which cannot be safely disregarded. For example, in days long past, the school of homeopathy benefited the so-called school of allopathy; Christian Science has in the present decade influenced legitimate medicine. Reform is not the word expressive of the profit derived from such protests; the protests are merely a substantial inspiration to a recount of the long existing elements of a given armamentarium and the employment of all of its resources. The resources which have been or may be unwittingly neglected or insufficiently stressed is a human manifestation in every established or recognized art or science. The specific neglects are regrettable, reprehensible even, but never fatal to the persistence of the establishment as a fundamental entity. Those who perceive

and undertake to cover the omissions are not entitled, necessarily, to a position on the same plane with those trained to determine when one or another plan of procedure is safe, logical or promising.

The osteopath, chiropractor, Christian Scientist, and "Coueist" may be compared to the independently disposed enlisted man who may be highly trained in gunnery or engineering but has not the broad and comparative view of the captain of the ship—has not his perspective and trained judgment in the innumerable and varied concerns embodied in the ship—and is therefore sharply circumscribed in his area of discretion. The osteopath has developed a useful ability along a certain line, but is not content with his legitimate possibilities—that of deep massage, manipulation and posture, etc. He aspires and attempts to range himself beside the "captain of the ship," to assume all his knowledge of the intricacies of the big job, to simulate his judgment, to exercise his authority and to enjoy his earned prerogatives. It is not proper that his unfounded ambition should be gratified by that form of recognition expressed in professional association on an equal footing. There is nothing of undemocratic pride of class in this point of view. It is natural resistance to the man of pretense seeking public acknowledgment as something other than he is. In general, the regular practitioner has little criticism of what the osteopath has to offer. It is the rôle in which he wishes to offer it to which objection is entertained. This is where Admiral Niblack's proposition is challenged. If his protégé can be persuaded to relax his pose and become more thoroughly educated, his contribution to medical science will become proportionately more available.



THE "CS-1," A THREE PURPOSE PLANE

PROFESSIONAL NOTES

PREPARED BY

LIEUTENANT COMMANDER H. B. HIRD, U. S. NAVY

GENERAL ARRANGEMENT

VESSELS BUILDING, NAVAL POLICY, MATÉRIEL, PERSONNEL
- Great Britain 799
- France 807
- Germany 813
- Japan 818
- United States 823

MERCHANT MARINE 830
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GREAT BRITAIN

The Cruiser Program

The Engineer, 29 February, 1924.—In framing the program of naval construction which the late government adopted a few weeks before the dissolution of Parliament, the Admiralty was legislating for what it considered to be the minimum requirements of the near future, having regard to the development of foreign building schemes and the steady wastage of our own *matériel* through obsolescence. This measure called for eight cruisers of 10,000 tons, mounting eight-inch guns; two destroyers, three submarines, a minelayer, an aircraft carrier, three gunboats, and two depot ships. It was to have initiated the process of reconstructing the fleet on modern lines, but within the limits of the Washington Treaty. Despite the intensive shipbuilding activity of the war period, our navy of today, though strong in numbers, contains a very large proportion of craft which are below the current standard of military efficiency. In light cruisers, for example, we are stronger, numerically, than all the other powers together, yet if the test of age, dimensions, speed, radius, or armament, be applied, our cruiser fleet cuts a far less imposing figure. When these ships were designed, a speed of 29 knots was deemed satisfactory for such vessels, and they were, in fact, the swiftest of their type afloat during the war. Since then, however, improvements in marine machinery, and particularly the adoption of reduction gearing for turbines, have enabled higher velocities to be attained without any appreciable increase in weight of plant, with the result that every cruiser, without exception, built since the war has been designed for a full speed of thirty-three knots, or more. Many of these vessels are being added

to foreign navies; Japan alone has twenty-five built or projected; the United States has ten, with eight more in contemplation; and the French program includes nine, while the British Navy is sadly deficient in vessels of the type and of the highest speed. The *Frobisher* and *Effingham* are designed for 31 knots, the *Emerald* and *Enterprise* for 33 knots; we have two other ships capable of 30 knots at their best, while the remainder are, for the most part, limited to 29 knots—a nominal speed which few of them could make at this date without first undergoing an extensive overhaul—and the twelve oldest ships, including those in dominion service, cannot exceed 25 knots. Good speed is the paramount requirement in a ship built for crusing duties, but endurance is scarcely less important, and in this respect, also, the great majority of our ships are deficient. They were designed primarily for service in the North Sea, where, in view of the proximity of friendly bases, it sufficed to carry enough fuel for a short cruise. But for the ocean work involved in commerce protection they are practically useless.

To state the case in the plainest terms: Our modern navy is strong in scouts but weak in criusers, properly so-called. This is the inevitable result of the building policy forced upon us by the exigencies of the late war and of the strategic situation which preceded it. Invaluable so long as North Sea hostilities continued, the bulk of our light cruisers forfeited most of their value as soon as the special conditions which had brought them into being ceased to exist. Our present need is not for fleet scouts, which is the true function of the *C* and *D* units that make up about seventy-five per cent of the cruiser establishment today, but for the large, swift, well-armed ocean-going ship which can steam her 10,000 miles on one load of fuel. Without an adequate number of vessels of this type, we should be unable to give effective protection to our sea-borne trade in a future war, and a serious interruption of that trade would, we need hardly say, be tantamount to defeat. After speed and endurance—with which seaworthiness may be bracketed—armament ranks next in importance. The *C* and *D* classes mentioned above mount a main armament of four to six 6-inch guns, and no heavier metal is carried by any of our cruisers save the four *Raleighs*, which are armed with the 7.5-inch gun. But the Washington Treaty has led to the universal adoption of a cruiser type of 10,000 tons displacement with a battery of 8-inch guns. Just as the dreadnaught, by virtue of her immensely superior armament, rendered all previous battleships obsolete, so has the "Washington cruiser" thrust the earlier vessels of this rating into the background. If we are ever again at war with a first-class naval power, it is with vessels of this formidable class that our commerce will be assailed, and unless we are able to meet like with like, unless we can match big cruiser against big cruiser, we shall assuredly have to deplore, not only the loss of valuable tonnage and merchandise, but a succession of naval disasters. In urging the provision of new cruisers, or, indeed, of any new men-of-war, to replace those which have become obsolete, it is quite unnecessary to draw invidious comparisons between the British Navy and the navies of other powers. The fact that we are maintaining a post-war fleet at all is sufficient proof that sea power is still regarded as indispensable to the security of the realm. When that much is admitted, it follows as a matter of course that our fleet must be kept up to the prevailing standard of efficiency, since otherwise it would be no safeguard but a standing menace to peace. True economy lies in the timely replacement of old, worn-out vessels by new ships designed on the most up-to-date principles. To spend money on keeping obsolete craft in service would be the most vicious form of extravagance. These, we may assume, are among the cogent reasons which have induced the new government to decide in favor of a limited program of new construction, notwith-

standing the opposition manifested by a section of its supporters. But, in taking this courageous step, the Prime Minister and his colleagues have the great mass of the public behind them. Our only regret is that they did not move a stage further and adopt the admiralty program in full. However, the question of building the remaining vessels is still under consideration, and they may yet be ordered in the coming financial year. The allocation of the cruiser contracts will cause disappointment to the shipbuilding industry. Only two out of the five ships are to be laid down in private dockyards, whereas, under the original scheme of eight ships, five would have been built by contract. The placing of two 10,000-ton cruisers out to contract will not, we fear, do much to alleviate the depression from which the industry is suffering, nor is it likely to have any marked effect on the unemployment problem. Had a start been made this year with the whole of the twenty warships and auxiliaries recommended by the Admiralty, 32,000 wage-earners would have stood to benefit thereby. As things are, less than half that number will be affected. While we are not unmindful of the claims of the royal yards, it seems to us that they have been unduly favored on the present occasion. Irrespective of new construction, they can always rely on a steady, if reduced, volume of work in connection with the maintenance and repair of existing ships, but the private yards have no such stand-by in slack times, such as the present. We think, therefore, that three at least of the new cruisers might have been put out to contract, and we hope that, in the event of it being decided to proceed with the balance of the program, due weight will be given to the serious plight of those great establishments in the North which have suffered so severely through post-war naval retrenchment.

It is somewhat early to speculate on the characteristics of our new cruising ships, though their displacement and the nature of their armament have been announced in Parliament. To incorporate in a ship of 10,000 tons "standard displacement"—which is, of course, somewhat above the "normal displacement" to which British men-of-war are ordinarily designed—an armament of 8-inch guns, machinery for a speed of at least 33½ knots, protection against gunfire and submarine attack, a large fuel supply, and accommodation for some 800 officers and men, is a problem which none but the ablest constructors are competent to solve. For this very reason, however, we are confident that our new ships will be found to compare most favorably with the best coeval types in other navies. The 8-inch gun is to reappear in the British Fleet after a lapse of more than thirty years. Being too heavy to be worked easily by hand, scarcely powerful enough to justify the installation of mechanical loading gear, it was supplanted by the 9.2-inch model, which continued to form the main armament of our first-class cruisers until the advent of the battle-cruiser. Only in the famous Elswick cruisers of the 'nineties, and in certain foreign ships, was the 8-inch gun retained. With modern methods of power loading and maneuvering, the new gun of this caliber should be a hard-hitting, long-range piece with a high rate of fire, and a cruiser mounting a battery of such weapons would be a dangerous antagonist for anything less than a capital ship.

Air Experts Ask 200 Planes For British Defense

Philadelphia *Public Ledger*, 8 March, 1924.—London, March 7.—Contingent upon the ratification by Parliament, the Air Ministry's estimates, made public today, would give England 200 airplanes for purely home defensive purposes by the end of next year, as compared with 600 machines for home defense estimated as the strength of France at the present time.

This is the outstanding feature of the latest aeronautical estimates and at the Air Ministry today the fact was not distinguished that France's overwhelming air supremacy leaves no alternative for England but to look to her own defenses.

With the warfare of the future destined to be more and more a problem of attack from the air, British experts declare England must take immediate steps to defend not only London but her wealth-producing industries in the midlands and the possessions of her far-flung empire. Those upon whom the responsibility of defending the empire devolves declare this is not jingoism but plain common sense.

With the present program completed, Great Britain will have a total of 650 first-line airplanes for home and imperial defense. This is about half of France's estimated air strength, which experts here place around 1,200 planes.

But it is emphasized that France has an overwhelming advantage inasmuch as in addition to her 600 machines at home she has numerous squadrons in her Northern African possessions, so that, to use a familiar phrase, she can concentrate them all at home overnight, or "make a French lake out of the Mediterranean" whenever she pleases, with all that implies respecting the safety of England's communications with India.

The present estimates are bound to raise immediate discussion regarding the responsibility for them and to furnish a subject for fruitful debates between the pacifists and militarists, in which now and then would be heard a still, small cry asking for an international conference to limit air and land defenses along the lines and principles laid down by the Washington Naval Disarmament Convention.

Meanwhile, British taxpayers are asked to find funds for an ultimate home-defense air force of 40,000 men and to expand the present imperial air material from thirty-eight to ninety squadrons.

American naval experts will be interested to know that today's estimates provide that the air units working with the navy be increased by five flights, or half squadrons, this being due partly to the increased number of aircraft carriers and partly to the provisions of aircraft for embarkation in capital ships and cruisers, as was the practice during the war, but which had since been abandoned by England.

Despite the labor government's congenital hostility to anything denoting militarism, as instanced in the expected shelving of the Singapore naval base program, the authorities of the Air Ministry are very sanguine over their present program and make a strong appeal that it be ratified in all its essential details.

Singapore Project Ignored In British Estimates

Baltimore *Sun*, 14 March, 1924.—London, March 13.—The Singapore naval base project, which is an all-important issue in navy circles, is passed over in the 1924-25 naval estimates presented to Parliament today.

Funds are made available for fueling purposes, but no large estimates for construction are mentioned. However, there is believed to be a possibility of a supplementary estimate for the whole project if the labor government does not announce its abandonment.

Great Britain's policy of encouraging dominion navies, of carrying on world-wide fueling plans, the increase of the naval personnel and construction of five new cruisers and two destroyers, are points in the estimates which have attracted the attention of American naval observers here.

The estimates provide for an expenditure of £55,800,000 sterling, a reduction of £2,200,000, as compared with the estimates for 1923-24.

The personnel is increased from 99,500 to 100,500.

In all points the estimates conform to the Washington treaty, it being explained that the capital ships to be scrapped under the treaty terms are in the hands of ship breakers, with the exception of one, which is not fit for further war service and will be used for experiments before final destruction.

Dominion naval co-operation is not a new policy, but the admiralty's hearty endorsement of the principle is looked upon as another intimation to the overseas empire units that the British Isles is bearing a heavy burden in the protection of communications and trade routes throughout the world.

For the first time the admiralty announces the complete strength of the Mediterranean Fleet, which, it says, will gradually be brought to eight battleships, two light cruiser squadrons, four destroyer flotillas, two depot ships, two aircraft carriers, one repair ship, one submarine flotilla and one submarine depot ship. The Atlantic Fleet will be similarly reduced.

In a statement accompanying the estimates Viscount Chelmsford, First Lord of the Admiralty, points out that a large bulk of the estimates covers expenditures to which the government was committed when it took office.

Introduction of the army estimates in the House of Commons today was accompanied by an incident in which the Labor Government was voted down, 234-207, on the proposal of John R. Clynes, deputy leader, to suspend the eleven o'clock adjournment rule. The conservatives raised the traditional cry "Resign!" but the government did not consider the defeat vital and the Secretary of War proceeded.

Lords Condemn Abandonment of Singapore Plans

By John L. Balderston, Baltimore *Sun*, 19 March, 1924.—London, March 18.—The Labor Government announced in Parliament today its abandonment of the plan for a great Singapore naval base, and in so doing based their decision on grounds of idealism.

An immediate attack was opened in both the House of Lords and the House of Commons by the Tories, and the House of Lords, by a vote of 56-10, condemned Premier MacDonald's gesture to the world.

What will happen in the House of Commons is still uncertain. There the government faces an onslaught from the Tories for the neglect of imperial defense. The opposition commenced tonight with a slashing attack from former Premier Baldwin and from L. S. Amery, First Lord of the Admiralty under Baldwin. Added to these came denunciation from the left wing of the liberal and labor parties for the exactly opposite reason that the cabinet sticks to the plan to build five cruisers.

The government's expectation is that with Liberal support it can defeat the Tory attempt to oust it on the Singapore issue and that the Tories will vote for them when the pacifist section of the House of Commons votes against the five cruisers. Thus by relying first on the left against the right and then on the right against the left, Premier MacDonald's government probably will weather the storm.

The Premier himself, speaking in the House where the diplomatic gallery held the entire personnel of the Japanese embassy, and Lord Chelmsford, speaking in the House of Lords, boldly put the decision to scrap the Singapore base on the grounds that a great Pacific base cannot be built because this government stands for a policy of international cooperation through a strengthened League of Nations, the settlement of disputes by concilliation, judicial arbitration and the creation of conditions which shall make a comprehensive agreement on the limitation of armament possible.

The Singapore base, Premier MacDonald read from a prepared statement, would hamper the establishment of this confidence and would lay British good faith open to speculation.

The Premier then outlined the view of the dominion governments on the Pacific naval situation. Australia and New Zealand, it was admitted in the Premier's statement, have demanded that the Singapore base be built for reasons communicated to the government, but not mentioned in Parliament. The dominions mentioned consider this a necessary defense against Japan and that, without a great Singapore base, the British battle fleet cannot operate from the strategic center of naval Asia.

Canada, India and Ireland, said Premier MacDonald's statement, have expressed no opinion, but General Smuts, for South Africa, supports labor's policy, describing it as a bold move toward enduring peace. General Smuts, the Premier said, feels that Britain's authority as the protagonist of the great cause of world peace would be seriously undermined by the construction of the Singapore base.

When Premier MacDonald made this statement, the House of Lords had already condemned the government's declaration, and, after news of the Lords' vote had reached the House of Commons, Mr. Baldwin, as Tory leader, announced that when the vote on naval estimates is reached in the House of Commons the Tories will challenge the division.

No doubt exists that Labor will make this vote one of confidence and will rely on Liberal support to keep them in office.

Shelving Singapore

Philadelphia *Public Ledger*, 20 March, 1924.—At the Washington Conference a deal of dickering was indulged in that Great Britain might retain the privilege of constructing a naval base at Singapore. The eyes of the world had turned toward the Pacific and had seen there large possibilities for another world war. Great Britain made sure of having a jumping-off place in case of emergency.

Australia and New Zealand had for some time been gravely afflicted with "heebie-jeebies," brought on by contemplation of Asia's seething millions. India, cornerstone of empire, was too great a stake to risk. A British naval concentration in the region of the Pacific would be impossible in absence of a large and modern base, and Japan always existed as a hypothetical enemy.

The British labor government has decided to abandon the Singapore project—at least until further proof of emergency is adduced—on the ground that it can serve no good purpose to wound the feelings even of a hypothetical enemy. The Labor Party is theoretically pacifist, and Ramsay MacDonald is at present engaged in creating a pacifist international atmosphere.

Quite naturally, the traditionalists, who remember that India made possible the royal navy and the royal navy made possible the empire, are worried. They feel a shortness of breath in this made-to-order rarefied atmosphere, in this artificial manipulation of the barometer in direction of the millennium.

The British dominions, too, view with a certain perturbation the inclination of the mother country to disregard their desire to be safeguarded against the Asiatic menace and other possible slings and arrows of fortune. And the worst of it is, they can do nothing effective about it.

The majority of Britishers, however, are traditionalists and have well-defined views about imperial defense. The Labor Government hold office upon sufferance of this majority. If the shelving of the Singapore project were really a matter of capital importance and this fact were realized, a reversal could be brought about in short order.

Will Britain Choose France or Germany?

By Hector C. Bywater, Baltimore *Sun*, 25 February, 1924.—London, January 31.—Current events deepen one's impression that the affairs of Europe are marching toward a crisis, the effects of which none may foretell. It might have been staved off for a year or two longer had the conservatives remained in power here, though only at the cost of a further slump in British prestige.

But the advent of a labor government seems likely to precipitate that open break with France which has been threatening for at least two years, and which, when it does come, will mark a turning point in the political history of Europe more momentous than the founding of the *entente cordiale* twenty years since. The interview with Mr. Ramsay MacDonald, printed in the Paris *Quotidien* on Sunday, is construed by practically the whole French press as an overt challenge to France.

True, it was granted before he became Premier, but Downing street does not deny that Mr. MacDonald's words were uttered a few days before his appointment, which, of course, he knew to be impending. The Paris papers interpret his carefully chosen replies to the *Quotidien's* questionnaire as a threat to turn France out of the Ruhr if she does not withdraw voluntarily.

That the new Premier entertains any such notion is exceedingly doubtful. So little does this country want another war on its hands that any government suspected of warlike intentions would be summarily dismissed, as the Coalition Government was in 1922, when it began to mobilize against Turkey.

But Mr. MacDonald appears to be hopeful of driving France out of the Ruhr by means other than martial action. His plan is, evidently, to give Germany the full moral support of Britain in her resistance to France, and, further, by bringing Germany and Russia into the League of Nations, to constitute in that assembly a powerful anti-French bloc, including Italy.

In this way he might, by placing France in a position of moral and political isolation, reduce her to a more pliable frame of mind. The plan is a curious compound of that idealism and mundane calculation which characterizes all the political schemes of the labor party.

It is, moreover, a plan which could only be carried into effect if the wholehearted support of the British public were behind it, and it is by no means certain that this support will be forthcoming. As the director of a policy aimed against France, Mr. MacDonald is handicapped by his pro-German record. It is not as if his tenderness for Germany were of recent origin. On the contrary, it was as pronounced during the war as it is today, and for this reason the Premier will find it no easy matter to convince the public of his disinterestedness in working on behalf of Germany.

If he succeeds it will be due to the help of France herself. Only those in daily touch with the masses here are able to appreciate the gradual but unmistakable change which is taking place in their attitude toward that country.

No doubt the process has been accelerated in some degree by pro-German propaganda—not the blatant and obviously subsidized brand which is concerned with the indiscriminate white-washing of everything German, including war atrocities, but the cleaner propaganda conducted by certain British writers and public men of flawless reputation who are honestly convinced that peace can only be saved by an Anglo-German rapprochement.

But, above all, France herself is primarily answerable for the cooling of British sympathy. Almost from the day of the Armistice she has

exhibited a cynical influence to the desires and the interests of her former comrade-in-arms. Her post-war policy in the Near East has been from the first openly antagonistic to this country.

There was, for instance, the secret treaty with the Turkish Nationalists, in which our interests were left entirely out of account. Then came what every British soldier refers to as "the betrayal of Chanak," when, in face of an apparently imminent Turkish attack, the French troops were suddenly withdrawn, leaving a small British contingent to face the probability of annihilation.

The subsequent occupation of the Ruhr did not excite much indignation among the public here, but what they have come to resent bitterly are the French efforts to jockey our army out of Cologne and the recent establishment of a virtual blockade of our forces there.

Another factor making for suspicion and distrust is the steady development of French armaments. To the intelligent Briton the official pretext for the maintenance of these gigantic armaments: viz., that they are required to protect France from German aggression, seems absurd. It looks to him as if their real purpose is to secure for France the military supremacy of the Old World.

He notes also that, not content with an army of 700,000 to 800,000 troops and an air fleet five to six times as large as the British, she is now building submarines in great numbers. Are they, too, needed to keep Germany in check or is the intimidation of Britain through the menace to her food supplies the real motive behind their construction?

Only a fortnight since it was announced that the French naval program had been strengthened by the addition of seven mine-laying submarines, bringing the number of submarines now building or authorized in France to fifty-seven. Germany began the World War with only twenty-eight undersea boats, yet even these were enough to menace our command of the home seas.

People here are less concerned with the powers and limitations of the submarine than with the patent fact that France is now concentrating on the development of the one weapon that our late enemy used with the deadliest effect against ourselves. This fact, taken together with the imposing strength of the French air fleet, convinces the majority that France is resolved, if need be, to coerce Britain into a policy of non-interference by the threat of overpowering attack.

In December, 1921, France had in view a submarine program that was modest compared with her present scheme, yet even then so cool an observer as Lord Balfour declared, at the arms conference, that "anybody who looked at the matter from a strategical and tactical point of view would say that these submarines were built against Great Britain. Men will inevitably ask themselves, 'What is the ultimate end underlying all that is being done? Against whom is this submarine fleet being built? What purpose is it to serve? What danger to France is it intended to guard against?' I know no satisfactory answer to such questions."

The only answer which seems rational is not one that tends to allay the growing suspicions of France.

But if France is becoming unpopular, it would not be true to say that the British people are already prepared to embrace Germany as a friend and future ally, and Mr. MacDonald will make a great mistake if he attempts to hasten matters in this direction.

While there is genuine sympathy here for the miseries of the rank and file in Germany, popular feeling is as hostile as ever to the Prussian nationalists and commercial magnates, whose power is, to all appearance, still mighty, if not predominant. While thousands of pounds of British money are going to feed the starving poor in Germany, the wealthy

classes there, to quote one recent witness, "don't move a little finger to help their suffering compatriots."

Another eyewitness declares that "in no country in the world are the rich less conscious of their responsibilities toward the poor; in none is human life so cheap."

It is all very well, thinks the plain man, for Mr. MacDonald to map out a policy for putting Germany on her feet, but what will she do when she gets there? Once restored to her old power, will she not begin to prepare for that "dreadful revenge" on France which seems to be the fixed idea of the entire German nation?

Lord Grey suggests that if the French and the Germans persist in prosecuting their blood feud our best plan is to stand aside and let them fight it out. But suppose Germany won, would she remain content with having crushed only one of her late conquerors? What surety have we that she would not follow up her victory by seeking to overthrow this country as well, thus eliminating her greatest commercial rival and the one obstacle that would stand between her and world power?

These are questions to which the British people would like an answer before they are invited to link their political destinies with Germany. Can Mr. MacDonald answer them to the satisfaction of his countrymen? That remains to be seen.

FRANCE

French Naval Building Program

Engineering, 15 February, 1924.—The bill for authorizing the second installment of the French naval program has been examined by the naval commission of the Chamber of Deputies, and a report has been made on it by Monsieur Paul Denise. To this report has been added another, in answer to amendments brought forward by Messieurs Morinaud, Guépratte, and Aiguier. In his first report Monsieur Denise, after reviewing the present condition of the French Navy, concludes "that it would be unthinkable to stop naval building." The substance of his remarks is, therefore, that the second part of the naval program shall be taken in hand. That program was, originally, that the following vessels should be completed by 1930: six light cruisers of 10,000 tons, fifteen flotilla leaders of 2,400 tons, twenty-four destroyers of 1,450 tons, four cruiser-submarines of 3,000 tons, thirty submarines of 1,300 tons, two minelayers of 4,000 tons, four oilers of 10,000 tons.

The program allows for no first-class ships. "It has been taken into consideration that 1931 will be the critical year with regard to battleship construction . . . and that it will probably mark an important stage in the evolution of the world's navies."

The commission hesitated to approve of the 10,000 ton cruisers: "Their length and draught render them vulnerable to mines and torpedo attack, and it will be difficult to protect them efficiently against aircraft." It was, however, decided that they ought to be built, in consideration of France's great colonial empire, and her need of cruisers. Experts differ as to the form of protection which should be given to these cruisers, and nothing has been decided. They will be armed with eight 7.9-inch guns, mounted in twin turrets, and they will have a speed of between 33 and 34 knots. "It is hoped that these ships will not be inferior to those of any foreign power."

A comparison is made in the program between the proposed destroyers and those of foreign powers, thus showing that the French vessels are superior in tonnage, horsepower and speed, with the possible exception of the Japanese boats about which exact details are at present lacking.

Their foreign competitors are: (i) the British *W* type, twenty-nine boats, including the *Witch*, which has just been put into commission; (ii) the American *Farragut* type, well over 100 boats, practically all of which were built in 1918 and 1919; (iii) the Japanese *Minekase* type, fifteen boats in all, built in 1920 and 1921; and (iv) the Italian *Curtatone* type, one boat only, built between 1920 and 1923. Taking these types in order, the latest information shows that the British boats have a displacement of 1,300 tons, and indicated horsepower of 27,000, a speed of 31 knots and six torpedo tubes; while the corresponding figures for the destroyers of the other countries are as follows: (*a*) Americans: displacement, 1,215 tons; horsepower, 27,000; speed, 33 knots; armament, 4-inch guns and two triple 21-inch torpedo tubes. (*b*) Japanese: displacement, 1,345 tons; horsepower, doubtful, but probably about 30,000; speed, 34 knots; armament, four 4-inch guns and three double 21-inch torpedo tubes; and (*c*) Italian: displacement, 940 tons; horsepower, 27,000; speed, 34 knots; armament, four 4-inch and two triple 18-inch tubes. As against these specifications, the French boats will displace 1,450 tons, have a horsepower of 30,000 tons, a speed of 33 knots, an armament of four 5.1-inch guns and four 21.7-inch torpedo tubes. It will therefore be seen at once that the figures at our disposal do not bear out all the claims made in the report, showing clearly enough that the French constructors consider that some unrevealed details give their type a boat of superiority over their foreign rivals.

The armament of the six flotilla leaders, however, comes in for some criticism. It is proposed that they shall carry six 5-inch guns, and this the commission consider insufficient, as the *Admiral Senes* (ex-German *V 116*) was armed with four 5.9-inch guns. The commission thinks that the matter should be reconsidered and armament of four, or even five, 5.5-inch guns of a light type is the "minimum admissible for flotilla leaders."

Expert opinion was very much divided upon the proposal to build large cruiser submarines: "Might not the 12,000 tons of the submarine cruisers be better utilized by building twelve boats of 1,000 tons or eight of 1,500 tons?" The commission none the less decided in favor of the submarine cruisers in order to have a division of three or four submarines working with the fleet, capable of firing salvoes of three torpedoes, and having a surface speed of 20 knots. The commission urged that the special vessels were an urgent necessity, but suggested that the minelayers and old-carrying ships should be so designed that they might be used for transport in peace time.

The amendments answered by Monsieur Paul Denise's second report were: (1) that a hundred submarines should be built instead of thirty-four; (2) that two instead of four cruiser submarines should be built and the 6,000 tons thus released devoted to submarines of between 1,300 tons and 600 tons; (3) that a submarine depot ship should be added to the program. The commission rejected the first and third proposals and agreed to the second; seven mine-laying submarines are to be built instead of the two cancelled submarine cruisers.

The second report contained the very important proposal to reduce the period of the second installment of the building program from six to four years and to complete it in 1928.

The program of ship to be laid down in the next five years, which the commission finally submitted to the Chamber of Deputies, is given in the table on the opposite page.

The most discerning criticism of this program has come from outside the French Chamber. Toward the end of last year, Monsieur Laubeuf, whose name as a naval designer requires no introduction, read a paper before the Academie de la Marine entitled, "Reflections on Naval Pro-

Year	Cruisers	Leaders	Destroyers	Cruiser Submarines	Submarines	Submarine Minelayers	Miscellaneous
1924	2	—	6	—	2	—	—
1925	—	5	6	1	7	2	1 minelayer; 2 oilers.
1926	2	5	6	1	7	2	—
1927	—	5	6	—	7	2	1 minelayer.
1928	2	—	—	—	7	2	2 oilers.
Total	6	15	24	2	30	7	—

grams." He contended, in the first place, that programs must be made to correspond to certain specified strategical desiderata, which only the civil government could supply, as they only know what policy the fleet will have to support. In the second place, he argued that naval construction was, of necessity, so fluctuating that no government should commit itself to a program of more than three years' duration. Dealing next with the details of the draft naval bill, Monsieur Laubeuf pleaded for the suppression of the 10,000-ton cruisers. The first duty of the French Navy would be to dominate the western Mediterranean; and the projected cruisers would in no way assist the fleet to do so. They were too large and costly to be used as fleet scouts, and far too weak to be treated as ships of the line. "No surface ship will be able to navigate the western Mediterranean if it is patrolled by strong forces of submarines and aeroplanes." Monsieur Laubeuf next criticized the French flotilla leaders. British leaders only displace between 1,600 and 1,800 tons, and the American Navy had no vessels of the type at all. The French displacement of 2,400 tons was, therefore, extravagant and unnecessary. In conclusion, Monsieur Laubeuf maintained that France only needed submarines of between 1,100 and 1,600 tons. Larger boats are only necessary to powers like Great Britain and America, whose navies had to act over very long lines of communications. France's navy will not have to operate outside Europe, so that, to her, the larger types of submarines are useless. Monsieur Laubeuf is very careful to show that his criticism of the program must not be interpreted as a contribution to the capital ship controversy. He is only discussing France's immediate naval needs. "I do not deny that, later on, larger submarines may be necessary for operating against a distant enemy, or for protecting our outer colonies; and I admit that, later on, we may have to build battleships, battle cruisers, and other types of vessels."

French Navy Notes

By J. B. Gautreau, *Naval and Military Record*, 13 February, 1924.—The friendly attitude of the British Labor Ministry toward France has caused an agreeable surprise here, at the moment when Franco-Italian Curie celebrations at Toulon are reviving the *fraternité d'armes de la grande guerre*. Recent statistics showed that "Imperialistic" France is spending far less on armaments than America, Great Britain, and Japan, less even than Germany, and has relatively disarmed to a greater extent than any other great power. What other nation, in the place of France and having suffered at German hands in the degree she has, would behave with the same moderation in German territory? Reparations and security are the sole aims of French armaments. The fact *nauveau* critics too

often overlook is that under-populated and rich France has no need of more land in the sun or of new markets; is no longer the France of Louis XIV and Napoleon. She threatens nobody, while being herself threatened.

The year 1924 will see a considerable change in the world situation, as the result of wholesale commands by America, Great Britain, Japan, and Italy. France, which is hopelessly behind in this respect, with only five inferior ex-Boche cruisers in service and three *croiseurs légers* of 8,000 tons constructing, will be compelled to order at least two 10,000-ton cruisers. Already, not to be caught napping, the Paris Section Technique has prepared in every important particular the plans of our future *croiseurs légers*, that are to displace fully 10,000 tons at normal load, to have a length of 185 meters, a width of 19 meters, and a draught of 6 meters, and on lines similar to those of the *Duguay-Trouin*, though tank experiments have led to noteworthy improvements in the shape of the bows. The artillery is to comprise eight guns of 203 mil. (8-inch) of long caliber and superior range. Special shells intended for both penetration and chemical effects have been designed for that new type of ordnance totally new in the Gallic Navy, that had nothing between the 194 mil. and the 240 mil. calibers. These 8-inch guns will be disposed, like the 5.1-inch weapons in the *Duguay-Trouins*, on the axial line in twin turrets, very thickly armored and provided with anti-gas appliances. The importance of quick firing and ammunition supply has not been lost sight of, and the new guns will fire at a faster rate than pre-war 6.5-inch weapons. There will be eight anti-aerial 75 mil. quick firers, and two scouting seaplanes of slightly more powerful model than those designed for the 8,000-ton cruisers will be carried. The oil-fired boilers will develop 130,000 h.p.: in practice they will develop twice the power of the British *Raleighs*, and easily maintain a speed of 35 knots, with about the same radius of action as the *Duguay-Trouins*.

Thus the projected 10,000-ton *croiseurs légers* will be merely the enlarged copy of the 8,000-ton units now in hand. Originality will not be their strong point, and nothing will be left to chance in their design, which causes most naval men to approve them. The perpetual change in hull design and distribution of armament that marked the 1890-1900 period has left an unfavorable souvenir in the minds of old French naval men, who were then sighing for wise uniformity and homogeneity similar to that being displayed in those times by the great British constructor Sir William White. Certain light cruisers like the *Infernet* and *d'Estrées* proved failures, and in others the distribution of the battery did not prove so advantageous in practice as it did on paper.

The Section Technique is being commended for working on safe lines and not sacrificing robustness and reliability to paper qualities. It is pointed out that the famed constructor outlined a 10,000-ton cruiser that would have great similitudes to the projected ships, and that the experience of the British and American Navies is in favor of twin turrets disposed as in the *Queen Elizabeths* and *Colorados*, concentration and command of fire being thereby facilitated, as well as stability and seaworthiness.

At the same time, go-ahead officers are pointing out that turrets *en échelons* and so close together as in the *Duguay-Trouins* are liable to destruction or temporary disablement by a single heavy shell or bomb, and, secondly, that by using triple or quadruple turrets, both types fully studied by French experts, a gain of one-fifth or one-fourth in weight could be realized, enabling nine or ten guns to be mounted in place of eight. To these criticisms experts answer that gun-power is not measured, as most people imagine, by the number of guns, but by the effective rate of fire and by the conditions of accuracy under which weapons

have to be fired. It is for reasons of this order that the twin 5.1-inch guns in the destroyers of the *Jaguar* type are so bitterly criticized. Triple turrets are deemed to be nothing but make-believe, gun and gunners depreciating or handicapping each other—safe if turrets are made very roomy, and in that case triple turrets offer no saving in weight. Quadruple turrets, divided by an armor wall as in the discarded *Normandies,* are preferred, being practically two turrets side by side, revolving on the same base, enjoying the same command and arc of fire, and benefiting from roominess, ventilation, ample reserves of ammunition and men, and all appliances for quick and accurate firing. These gun houses could easily fire two successive two-gun salvos per minute. A single hit could not disable the four guns at a time, but an accident to the turntable or a shell perforating the armored base would spell disaster, and that argument has great weight with French navy men. But for the new gas danger, the seven-gun positions, as in the British *Hawkins,* would meet all requirements; but it is felt gunners must be protected against asphyxiating bombs and clouds. Gas masks, besides having little value against novel forms of gas attacks, are incompatible with the accurate handling and firing of guns, as experience has proved. On the whole, when all points are considered, the twin turret is seen to offer the greatest ensemble of advantages, and especially it permits the simultaneous firing of two guns on a target under ideal conditions if the turrets are roomy enough.

The 8,000-ton *Lamotte-Piquet,* that is being built in dry dock at Lorient, will be floated this month, and her sister ship, *Primauguet,* laid down at Brest in August last, is fast approaching the launching stage. The coming spring will thus see the three French *croiseurs légers* afloat, and all could be completed within the present year if such an effort became necessary. Similarly, the destroyers are making good progress: the *Jaguar* is completing afloat, and the *Panthere* will be launched very shortly. The *Leopard,* in hand at Les Chantiers de la Loire, St. Nazaire, is built up to the upper deck, and will be floated early in the spring. The *Chacal* (Penhoet) is nearly as advanced. The *Lynx* (La Loire) and *Tigre* (Chantiers de Bretagne, Nantes) are lagging behind, but they will nevertheless be ready at the scheduled time.

The 10,000-ton cruisers, like their predecessors, are to receive the names of famous naval leaders: Bouvet, Cassard, Surcouf, Troude, Duquesne, Tourville, the mistake having been seen of naming instruments of national defense after doubtful heroes of party warfare and internal strife (*Danton, Vergniaud, Gambetta, Terry,* etc.), revolutionary writers or poets (*Victor Hugo, Renan, Quinet, Voltaire,* etc.), second-rate politicians (*Waldeck-Rousseau*), or abstract so-called Republican virtues (*Justice, Egalité, Verité, Liberté,* etc.) that excite amusement and derision. Henceforth the appellation of our men-of-war is to be worthy of the respect of every Frenchman—a change that points to greater earnestness and patriotism in the direction of French naval affairs. Franco-British naval nomenclature is a bond between the two nations, a perpetual reminiscence of the gallant fights and loyal leaders of old. No two other nations stand in the same relationship. England was practically the only rival of France on the water up to the twentieth century; and naval glories at the expense of France are, today, still the only ones the British Navy cares to commemorate. The two great British ships building are named after Nelson and Rodney, victors of Villeneuve and de Grasse; and similarly, the three Gallic cruisers now in hand do honor to the memory of splendid chiefs which achieved fame in fighting against England, but in fighting nobly and loyally. To Lamotte-Piquet, for instance, the gallant English admiral, Hyde Parker, wrote on the morrow of a fight: "Sir, our differences are only tem-

porary, but my esteem for you will last as long as I live," which he worded in French: *"Monsieur, nos differends sont provisores, mais mon estime pour vous durera autant que ma vie."*

The recent bombardment of Marseilles by the Dumesnil squadron threw interesting light on up-to-date developments of coastal warfare, due mostly to the intensive use of camouflage, cloud screen, and gas devices, and which show conditions of harbor defense to have been somewhat revolutionized, much to the advantage of the attacking side. During the war the famed actions against the Dardanelles, Ostend-Zeebrugge, and Durazzo, proved the risks involved in detailing large surface ships against fortified bases; and on paper, in these days of submarines and seaplanes, it would seem to be mere folly for battleships to approach within striking range of shore batteries, and, by so doing, to run the chance of receiving knock-out blows without having as a counterpart, the possibility of inflicting decisive damage on the enemy. Admiral Dumesnil, preceded by mine-sweepers and destroyers, steamed under cover of night within range of Marseilles, and, protected by artificial clouds, simultaneously and promptly effected the bombardment of the great city and the capture of shore batteries by landing parties. At dawn he had won a fine victory, and without any loss, the smoke-screen tactics of the destroyers rendering extremely difficult the task of the defending submarines *Andromaque, Arethuse,* and *Callot,* minelayer. Surprise did it; and surprise will ever be the royal road to success in warfare. Of course, it goes without saying that in the real thing enemy ships would avoid emptying their ammunition bunkers on Marseilles so long as the possibility remained of a French squadron rushing out of Toulon. And —the most telling argument of all—there is no need nowadays of bombarding battleships when seaplanes can do the job so much better and quicker and with a minimum of risks.

France and the Submarine

Naval and Military Record. 27 February, 1924.—When France, after considerable delay, ratified the Washington Naval Treaty last year it was widely assumed that by this act she had accepted the whole of the obligations entailed by that instrument. This, however, is not the case. As the Prime Minister stated in the House of Commons last week, the resolutions pertaining to submarine warfare and poison gas, which are tacked on to the Naval Treaty without forming an integral part of it, have not yet been ratified by the French Parliament. To quote a London contemporary, "the position is, therefore, that while the other four parties to the Limitation Treaty have pledged themselves not to employ submarines for the attack of enemy shipping or to use poison gas in warfare, France retains complete liberty of action in both respects."

The resolutions to which Great Britain, the United States, Japan, and Italy have subscribed virtually prohibit the use of the submarine as a commerce destroyer, as will be seen from the text, which is worded as follows: "The Signatory Powers recognize the practical impossibility of using submarines as commerce destroyers without violating, as they were violated in the recent war of 1914-18, the requirements universally accepted by civilized nations for the protection of the lives of neutrals and non-combatants, and to the end that the prohibition of the use of submarines as commerce destroyers shall be universally accepted as a part of the law of nations they now accept that prohibition as henceforth binding as between themselves, and they invite all other nations to adhere thereto." So far, at any rate, France has not accepted the invitation. Her failure to do so will inevitably be cited by her critics as additional proof of her militaristic tendencies.

It is unfortunate that some of the ablest French naval writers should have taken up the cudgels on behalf of *U*-boat frightfulness as practiced by the Germans. Captain Castex is not the only French officer who has publicly asserted his belief in the righteousness of the German policy in sinking ships without warning. We may endeavor to convince ourselves that French seamen would never descend to the depths of infamy reached by the German *U*-boat captains and their superiors, but the fact remains that the vile deeds perpetrated by those men are publicly approved by French officers of distinction. It is even asserted, and apparently with truth, that the idea of torpedo warfare against merchant shipping originated not in Germany but in France.

As far back as 1888 Admiral Aube, founder of the "Jeune Ecole" or anti-battleship school, urged that torpedo-boats should be employed to sink without mercy every enemy merchant vessel they chanced to meet, regardless of the fate of crew and passengers. It is unnecessary to add that this precept was widely quoted in Germany during the war as proof that the *U*-boats were doing no more than French submarines would have done in their place. Captain Castex, until recently lecturer at the French War College, considers the Germans to have had "an absolute right" to employ their submarines in the way they did; yet, if we remember aright, protest against the atrocious conduct of the German *U*-boats was nowhere more vehement during the war than in France.

We might dismiss the opinions of Captain Castex as those of an officer who spoke only for himself and did not reflect the views of the French naval service, were it not for the marked attention which is now being devoted in France to the development of the submarine arm. Of the fifty odd submarines included in her post-war program the greater number are big, ocean-going boats of a type more adapted for commerce-raiding on the high seas than for the defense of coasts and communications, which is the official reason for building them.

Faithful In Death

Translation, by Captain F. B. Upham, U. S. Navy.—Let the nation in mourning take comfort in a beautiful thought. In the strange finding of the body of the *Dixmude's* captain let us see a sign which even the magnificence of the funeral ceremony cannot efface.

It is the sign of a high and rare destiny. He to whom life came through a long line of fighting ancestors from the Forest of Brocéliande was singled out for this rude, chivalrous, marvelous end.

With the world vainly seeking the errant airship, her helm in the hand of du Plessis de Grenédan, with the heavens guarding their secret from our profane radio, the dead captain rises sole witness from the deep. His body has yet an earthly duty to perform.

Without the return of this one dead officer, we would still be searching the Sahara for the flying shadow of the *Dixmude*, cherishing fearful hopes! But du Plessis has returned to dispel them.

While we are torn with doubt and fear he appears from the watery desert faithful in death, this chief, phantom of an incarnated discipline bringing his mission to a lofty close, reporting to his country the manner of end met by his crew, and claiming sepulchre in the name of those fifty brave men whom the sea enshrouds in its tears—and in ours.

GERMANY

Fleet At Scapa Flow To Be Salvaged

By Hector C. Bywater, Baltimore *Sun*, 8 March, 1924.—London, February 14.—The German High Sea Fleet, which has been lying at the

bottom of Scapa Flow for the past four and a half years, is now to be raised and sold for junk. This is the crowning humiliation to befall that ill-starred armada, once the pride of the fatherland and the most cherished possession of its Kaiser.

The admiralty has made a contract with a firm of steel merchants and shipwreckers, who undertake to salve the greater number of the scuttled ships. Preparations are already well advanced, and the work will begin at the end of March.

The surrender of the German Fleet in the Firth of Forth on November 21, 1918, was a unique historic event, which has been depicted by Mr. Bernard Gribble, the English marine artist, whose fine canvas now hangs in the Navy Department at Washington. This painting shows Admiral Beatty standing with Admiral Rodman, U. S. N., on the quarterdeck of H. M. S. *Queen Elizabeth,* watching the German dreadnaughts defile past the interminable lines of the Grand Fleet.

It is a fact not commonly known that while this spectacle was proceeding the crew of every British and American ship in the Grand Fleet were at battle stations in full fighting rig; that every gun was shotted and every torpedo tube loaded in readiness for instant action.

While the terms of the surrender decreed that the German ships, before leaving for the Firth of Forth should have their magazines emptied and that they should reach the rendezvous with their turret guns trained fore and aft, there were many officers in the Grand Fleet who expected some act of treachery. They would not have been surprised had the German battleships suddenly opened fire at point-blank range, in the hope, not of escaping from the enemies by whom they were encircled, but, of striking one last blow for the honor of the fatherland.

Had anything of the kind been attempted they would have been blown out of the water, though they might have taken a heavy toll in Allied ships and lives before going to the bottom.

But, in fact, the German crews had no thought of resistance. The surrender passed off according to program, and the most remarkable day in the annals of naval history closed without untoward incident. From the Firth of Forth the ships were escorted to their place of internment in the desolate anchorage of Scapa.

It was considered strange at the time that their officers and men should be allowed to remain on board instead of being displaced by Allied care-taking parties. Why this was not done has never been clearly explained.

Nothing would be easier, it was pointed out, than for the whole fleet to be scuttled if the Germans chose to do so, which was not improbable considering the boasts of the Nationalist press that the Kaiser's ships would never be disgraced by passing under enemy flags. Except that guard boats patrolled around the interned fleet, no precautions were taken to avert what actually happened on June 21, 1919.

Hearing early that morning that the peace treaty had been signed in Paris, the senior German naval officer proceeded to execute the secret orders which he had received from Berlin weeks beforehand. At a signal from the battle cruiser *Seydlitz,* water was admitted to every ship by opening the sea cocks, and in a few minutes they began to settle.

The British battle squadron had left Scapa the previous day to carry out training at sea, leaving only the guard boats on duty in the anchorage. Attention was first drawn to what was going on by the sight of German officers and seamen leaving their ships in boatloads. Then it was observed that smaller vessels were already heeling over as their compartments became flooded, while even the great dreadnaughts were visibly lower in the water.

Such British craft as were available did their best to circumvent the plot by reaching the waterlogged vessels before they foundered. But in most cases it was too late. The superdreadnaught *Baden*, three light cruisers and a few destroyers were towed close in shore, where they could easily be pumped out and refloated, but all the others sank in deep water.

The fleet thus sacrificed included the battleships *Bayern, Friedrich der Grosse, Grosser Kurfürst, Kaiser, Kaiserin, König, Kronprinz Wilhelm, König Albert, Markgraf*, and *Prinz-regent Luitpold;* the battle cruisers *Hindenburg, Derfflinger, Seydlitz, Moltke*, and *Von der Tann*, and the light cruisers *Cöln, Dresden, Karlsruhe, Brummer* and *Bremse*. Its aggregate displacement was over 250,000 tons.

When the news reached Germany there was great jubilation among the Nationalists, who declared that the navy had redeemed its honor; though why such a flagrant breach of faith should be deemed honorable it were hard to say. It is curious to note, also, that the scuttling of the fleet at Scapa is one of the "hero deeds" of the German Navy as chronicled in a semi-official volume entitled *Auf See Unbesiegt*, which seeks to prove that the German naval forces at no time suffered defeat in the war.

The sinking of the interned fleet gave rise to a crop of startling rumors. It was said, for instance, that the Germans had been tacitly encouraged to make away with their ships by the withdrawal of the British squadron from Scapa at the psychological moment, and above all, by the omission to place armed guards aboard them. Had the fleet remained intact it might well have proved a bone of contention between the Allies, some of whom wished to parcel out the ships among their respective navies.

France was reported to have cast covetous eyes on the German battle cruisers, as she possessed no vessels of that type. The Paris papers, with their customary outspokenness, accused the British Government of having connived at the scuttling of the fleet in order to prevent France from reinforcing her navy in this way. Even at home the government had to face a storm of criticism, certain journals blaming it severely for having failed to take adequate precautions against German trickery.

But in truth this censure was undeserved. The conditions under which the fleet was to be interned had been drawn up by a committee of admirals, on which all the Allied navies were represented. It was suggested then that as soon as the German ships were handed over their crews should be sent home and the vessels placed in charge of Allied boarding parties until such time as their fate was determined.

For some reason this proposal was turned down. Britain, therefore, was no more responsible than her Allies for what occurred at Scapa. That she did not shed tears over the loss of the ships may, however, be true enough. She had certainly supported the plan, advanced at the admirals' conference in Paris, for taking the ships out to sea and there sinking them *en bloc;* but so, from all accounts, had the United States.

Moreover, there is nothing to show that France ever put forward a claim, formal or otherwise, to any of the surrendered vessels, of which the majority were, in fact, of out-of-town design and must soon have been rendered totally obsolete by post-war developments in naval construction.

As a penalty for having scuttled the Scapa fleet Germany was required to deliver up all her remaining men-of-war save the very oldest, together with her floating docks and a large quantity of other naval material. From beginning to end she had to surrender twenty-four dreadnaughts and battle cruisers, including those sunk at Scapa, sixteen light cruisers, 142 destroyers and more than 100 submarines.

As her previous war losses ran to 508 vessels of every description, including *U*-boats and auxiliaries, it could be said with literal truth that the once mighty German fleet had been wiped out. When the ex-Kaiser, hearing of the Kiel mutiny on November 9, 1918, exclaimed to Admiral Scheer in a passion of rage and grief: "My navy has ceased to exist!" his words had a prophetic significance of which he himself could not have been conscious.

The terms of the peace treaty were avowedly designed to keep Germany permanently in the status of a third-rate naval power. She is permitted to maintain in commission only half a dozen ancient battleships, none of which has any fighting value; the same number of old cruisers, twenty-four torpedo boats and no submarines. Whether these terms were unduly drastic is a point on which there has been considerable debate.

If the restriction of their post-war fleet to such negligible dimensions has been taken very calmly by the German people, in contrast to their bitter denunciation of other clauses in the treaty, the reason is to be found in their complete lack of interest in the naval service—nay, their positive detestation of it. They regard it as one of the prime causes of all the disasters which have overtaken them.

Despite Nationalist propaganda, every intelligent German knows that the ex-Kaiser's bid for the trident made war with Britain inevitable. He knows, further, that the brutal misuse of submarines by Germany's naval chiefs brought the world into arms against her and thus took away the last chance of victory.

Then, just before the final collapse, the navy broke into open mutiny and did its best to Bolshevize the stricken fatherland. The excesses committed by mutinous German sailors in many parts of the country during those hectic days immediately before and after the Armistice form a lurid but half-forgotten chapter of war history.

But if the mass of the German people have lost faith in sea power, the Nationalists have not. They look forward to the day when a powerful German Navy will once more ride the waves, and meanwhile they are doing their utmost to make the tiny fleet left to them a highly efficient nucleus, capable of rapid expansion when the proper time comes.

Germans Find Way To Build Up Army

Baltimore *Evening Sun*, 29 February, 1924.—Paris, January 20.—Today Germany, or at least eighty-five per cent of the German people are united against the "common enemy"—France. This is the achievement of the hidden forces which have been working under General von Seeckt's impulse in the past year, and they feel certain that at the first call the nation will respond.

An army has always to give serious consideration to its officers. On account of the restrictions of the Treaty of Versailles it seemed practically impossible for Germany to bring up a body of officers to lead the millions of German men. It would be easy to get almost any number of young men to join up, but it was essential that an undesirable type of men, from the Prussian point of view, should not be allowed to become officers and endanger the traditional spirit of that select body. To avoid this, the old pre-war regulations of selecting officers have been put in force again. A young man who wants to join the army as an officer has to apply as in the days of the Kaiser to the commander of a regiment, usually an officer of the old régime. This officer looks into the young man's antecedents. Should any of his relatives be even suspected of having had any connection with socialists or communists, the commander tells him there are no vacancies in his unit and then informs other

regimental commanders that a suspicious character has asked admittance into the army.

In this way the army is kept free of any "undesirable" element and the leaders are able to form new groups of officers in accordance with the old Prussian tradition. It is sufficient to glance over the new German Army list to see that the proportion of officers from aristocratic families is almost as large as during the days of the Kaiser.

Although more young men are taken into the army than the treaty permits, the number of active officers is small. In order to fill the gap, the German organizers had to appeal to a body that has always provided Germany with a large number of excellent fighters—university students. For almost two centuries the German students have had corporations that have played an important rôle in moments of national crisis.

These corporations suffered a great deal after the war. Formerly well-to-do families were no longer able to send their sons to universities; much less could they afford to pay the expense of belonging to these clubs. Help came from wealthy German patriots, landlords and industrialists, who since last year have been supplying the clubs with sufficient funds to keep up their traditions and enable a large number of young men with meager allowances to follow the lectures of the German universities and belong to the clubs. When they join it is well understood that they will join the army and become reserve officers. Hence their nickname of Stinnes officers.

All these young men who volunteer as reserve officers undergo every year a three months' period of drill with an infantry or cavalry unit. At the end of two years they are given the rank of second lieutenants and must do for a number of years—a number which has not been fixed—six weeks' exercises annually with their regiments.

The young men of what Germans regard as the lower classes, the future rank and file, are trained in a similar manner. They are allotted to regiments and summoned for periods of six weeks or two months for intensive training. Then other young men take their places.

In this way each company keeps the standard number imposed by the Treaty of Versailles, but has six new drafts a year. The result is that each company of 120 men has in reality 720.

In order to avoid confusion, each regiment has three sections. Take, for instance, the Koenigsberg division. It has officialy three regiments—Nos. 1, 2 and 3—but besides this official organization there are the One Hundred First, One Hundred Second and One Hundred Third first reserve regiments and the Two Hundred First, Two Hundred Second and Two Hundred Third second reserve regiments. Thus the Koenigsberg division could be transformed into three complete divisions.

This system has been applied to every German division.

For the time being, Germany has at least as many soldiers as France, and the man who has fought in the German Army is well trained.

German Fleet Development

By Hector C. Bywater, *Naval and Military Record*, 25 February, 1924. —Reviewing German naval developments of the past year, the *Marine Rundschau* states that the most important step taken in 1923 was the establishment of a single command for the entire naval forces, whether attached to the Baltic or the North Sea stations. This is a reversion to the system which was in vogue before and during the war. The present "Commander-in-Chief of the Naval Forces" corresponds to the former "Commander-in-Chief, High Sea Fleet," and is directly responsible to the chief of the Navy Department in Berlin. The active fleet is being gradually expanded to the full limit of strength permitted by the Peace Treaty: viz., six battleships and six light cruisers, with

torpedo craft. Hitherto, for reasons of economy, only two battleships have been kept in commission, but they will shortly be joined by a third vessel, for which a nucleus crew was assembled in the autumn. The remaining material of the navy appears to be kept in good condition, and most of the ships and torpedo-boats have undergone refit since the war. The light cruiser *Berlin* was partially reconstructed in 1919-20, her long ram being replaced by a graceful clipper stem, and the *Amazone* has now been modified in the same way. Meanwhile the post-war fleet, small thought it be, puts in a great deal of sea training. Gunnery and torpedo exercises are carried out regularly, and cruises are not infrequently made in Scandinavian waters. According to the *Marine Rundschau*, the coolness which sprang up between the navy and the German public after the war, and which was accentuated by the Kapp "Putsch," has now all but disappeared, giving place to a feeling of friendly interest.

JAPAN

Japan's Navy After the Earthquake

By Graser Shornstheimer, *Our World*.—Contrary to the somewhat exaggerated reports received in this country, the Japanese Navy suffered comparatively little in last autumn's earthquake disaster. The great battle fleet was not in the vicinity of the danger at the time of the quake, being at maneuvers in the vicinity of Port Arthur. Only two ships of any consequence were lost; the battle cruiser *Amagi*, which was being transformed into an aircraft carrier, as provided in the Washington Naval Treaty, and the light cruiser *Naka*, then being built at Yokohama.

Possibly the greatest damage to the navy was the wrecking of the great fuel oil storage wells at Yokosuka. It is said that the wrecking of these wells released the great flood of oil that caused the disastrous Yokohama fire.

Reports concerning the total destruction of Yokosuka were greatly exaggerated. Some storehouses were knocked down and some old wooden shops collapsed. But in every case it is believed that the machinery is intact. Recent visitors to Yokosuka say—and this is most important—that the dry docks are practically intact and that no damage to them can be noticed except that here and there a few blocks of stone are jarred loose.

Perhaps the best evidence of the condition of this yard is found in the government's decision to lay down at Yokosuka a cruiser of the largest size permitted under the Naval Treaty.

The loss of the oil storage facilities at Yokosuka is nullified by the completion of the largest oil storage reservoir in the world at the Naval Dock Yard at Kure. This tank has a capacity of no less than 100,000 tons of fuel oil.

The loss of the *Amagi*, a large vessel displacing around 33,000 tons, may be made good under the Washington Naval Treaty, because she was lost by accident. The Japanese Government has already informed the British Foreign Office that the battleship *Kaga*, which was to have been scrapped under the Treaty, is to be completed as an aircraft carrier in the place of the *Amagi*.

This leaves a net loss to Japan of one light cruiser, the *Naka*. Conflicting reports are received concerning her condition. One report says that it will be possible to complete her despite the damage and other reports contradict this. It is quite certain, however, that despite the damage to the vessel's hull, her engines are intact. This may mean that the ship will be replaced, using the engines intended for the *Naka*.

Throughout the world it was expected that as a result of the great disaster the Japanese naval estimates for the current year would be ma-

terially reduced. But this apparently will not be the case. A statement by the Minister of the Navy, Admiral Takarabe, is to the effect that the naval program will not be curtailed even to the extent of a single cruiser. The original estimates for this year called for an expenditure of no less than 278,000,000 yen to maintain a navy three-fifths the size of those of the United States and Great Britain.

The expenditure of such a sum on the Japanese Navy at this time was only naturally a source of alarm to the Ministry of Finance. It was urged that the program be curtailed, if only to the extent of 10,000 or 15,000 tons of new warships, and that the present program be extended over a period of years.

This, however, did not please the Navy Department. Finally, it was agreed that the present program could be extended about one year, that several naval stations should be abolished and the personnel of the other yards be materially reduced. This affected a saving of 39,500,000 yen and left the naval estimates at a total of 238,000,000 yen.

Persistent efforts were made to have the Navy Department curtail the building program and finally the recent Premier, Admiral Count Yamamoto, is said to have been asked for a decision. Admiral Yamamoto proved to be solidly back of the Navy Department's stand and the naval estimates will go to the Diet at 238,000,000 yen.

This figure is divided into two parts. One, of 126,300,000 yen, goes for "ordinary" expenditures, such as the general upkeep of the fleets. The second part, 112,200,000 yen, goes for "extraordinary" expenditures, which means improvements and additions to the present establishments. So it is that this year approximately half the Japanese naval budget goes for additions to the present forces, despite the earthquake disaster.

To understand thoroughly what this means it is necessary to glance at the list of Japanese naval vessels and to compare it with the lists of American and British warships. We find that for every modern cruiser in the American Navy there are approximately two in the Japanese. This discrepancy becomes even more surprising when it is realized that under the "extraordinary" expenditure of the naval bill, Japan is to build more cruisers. In this connection it is well to remember that Congress has consistently refused to appropriate for a single cruiser for our Navy in extension of the 1916 program—and it may be questioned whether the program of the Japanese naval authorities is in keeping with the spirit of the Washington Treaty.

The Naval Ratio Treaty specifically outlined a policy in material for the nations of 5-5-3. However, due to this forced construction, the Japanese will soon possess approximately thirty modern fast cruisers to ten for America. The Japanese ratio to the United States is as three is to five, not as three is to one.

At the time of the quake, construction was stopped on four large 7,210 ton cruisers. Only this month the order has gone out to recommence work on these ships—the *Kako, Furutaka, Kinugara,* and *Aoba* (or *Aotaka*).

The acquisition of these fine new ships by Japan has stirred Great Britain. Though the British already have nearly sixty cruisers, having speeds in excess of 25 knots, to nineteen vessels for Japan, the British ships are small and lacking in sufficient cruising scope to allow them to operate outside European waters. As a result the British Admiralty is asking Parliament for no less than seventeen new vessels of the largest size permitted under the Washington Naval Treaty. These totals are in striking contrast with only ten American cruisers, of three-quarters the size permitted by treaty.

However, the way of the Japanese Navy estimates will not be entirely smooth in the Diet. Various members have publicly pledged themselves

to demand an investigation of the activities of the Japanese Navy during the disaster. It appears that there are plenty of reasons for looking into the conduct of the navy, if only to dispell some mistaken impressions. But the course the investigation of the Japanese Navy will take, if it "takes," can have little effect, if any, on the appropriations. It is a well defined policy of the Japanese government to dissolve a Diet that refuses to sanction a defense measure and to obtain a Diet more tractable.

While new vessels are building for the navy, the older ones will be modernized to bring them to the highest possible degree of efficiency. It has been announced that the battleships of the *Fuso* type are to have torpedo-proof blisters fastened to their sides and that they are to receive new anti-aircraft guns. Again it is reported that all the ships of the *Fuso* and *Kongo* classes are to have the elevations of their big turret guns increased. At present these guns are said to have an elevation of eighteen degrees and the proposed angle is stated at twenty-five degrees.

The Japanese have sixteen modern cruisers in their navy at present, and eleven further vessels under construction or authorized. In addition to these ships, two large aircraft carriers are being built.

Approximately thirty destroyers and seventy submarines are under construction. A large submarine depot ship has just been finished and a second vessel has been started. A large number of oil tankers are under construction as well as a number of gunboats, mine-sweepers and other auxiliaries.

From this it is to be seen that Japan has the largest naval program of the nations of the world.

The situation regarding bases brings to light the important fact that Japan intends changing the active sphere of operations for her fleet from the Sea of Japan to the Pacific. The very small naval station at Eiko is to be abolished. This station was about as important to Japan as was the Sacketts Harbor, N. Y., station to the United States. The bases at Takeshiki, Chinkai, Port Arthur and Maidzuru are to be materially reduced.

On the other hand, bases such as Sasebo, Ominato, Yokosuka and Kure, the Pacific bases, will probably be enlarged. The important base at Bako, in the Pescadores Islands, can not be enlarged or increased because of Article XIX of the Naval Treaty.

The disaster brought to light the fact that the Japanese have no fortifications in the Bonin Islands. However, the repair facilities at Port Lloyd would most certainly be available to the Japanese Fleet in time of war.

The Japanese base at Bako is only a few hundred miles from the Philippines. While this base must be maintained at the *status quo* of the time of the Washington Arms Conference, it was at that time of sufficient importance to serve as an operating base for the Japanese Fleet, while the American base in Manila is practically useless as a fleet operating base, because of its limited repair, storage and docking facilities. Bako is properly defended and Manila is not.

Singapore is the only unrestricted base affecting the eastern coast of Asia not in Japanese possession. Properly developed, it might easily become a port from which the Philippines and a large part of the Chinese coast might be commanded. Reports concerning the abandonment of this base by the British do not seem to hold fact. The new British naval estimates are reported to call for a fairly large appropriation for Singapore, and the British Dominions stand ready to contribute a large share of its cost. New Zealand, for example, has made the offer of £500,000. The Dominion Premiers voted in favor of the Sinpagore base proposal at the recent Imperial Conference in London.

Japan lives up to the letter of the scrapping pact of the Washington

Naval Treaty, despite the quake. Nearly all the large ships to be broken up were at Yokosuka at the time of the disaster. It was planned to scrap them there, but they were finally taken to other yards to be broken up.

At Kure the battleship *Settsu* is being fitted out for use as a target, as is the battleship *Tosa*, 39,000 tons. It is yet to be definitely decided whether the battleships *Satsuma* and *Aki* will be used as targets or broken up. The battleship *Asahi*, which may be retained after she is made useless for any war purpose, is being reduced to a hulk. The battleship *Mikasa* is also being scrapped at Kure. It is proposed to save this famous ship's bridge upon which Admiral Togo commanded the Japanese Fleets in the battle of the Sea of Japan, and a sum has been made available to remove it to the naval museum at Tokio. The battleship *Ibuki* is also being scrapped here. Its boilers will be used in the tanker *Hayatoma*, building at the same yard.

The Sasebo dock yard is scrapping the battleships *Kurama*, *Ikoma* and *Hizen*. The battleship *Shikishima* is being reduced to a hulk so that it may be retained for training purposes under the Naval Treaty.

At the Maidzuru yard the battleships *Kashima* and *Katori* are being scrapped.

These vessels together with the battle cruiser *Amagi*, lying at Yokosuka, complete the list of ships which Japan is to scrap.

The present Japanese Navy is made up of two fleets. One composed of battleships and auxiliaries is known as the First Fleet. Another squadron composed of battle cruisers, light cruisers and auxiliaries is known as the Second Fleet. It holds maneuvers usually more than twice each year, in contrast to the single yearly maneuvers of the American Fleet.

The operation of the Japanese Fleet is a serious problem. Oil is the most desirable fuel for military as well as commercial reasons. All the Japanese ships are fitted to burn more or less oil and coal. But while there is plenty of coal in Japan, there is practically no oil. The Japanese are forced to buy this commodity of the Shell Company in the Dutch East Indies. To transport it to Japan a huge fleet of tankers has been built. Great fuel tanks have been constructed at all the dock yards and here the oil is stored for emergency use. It is said that through the earthquake, Japan lost one quarter of her supply of oil fuel through the destruction of the Yokosuka storage tanks.

In conclusion, it may be said that the disaster has had, if anything, a good effect upon the condition of the Japanese Navy. It destroyed old buildings and shops which probably would not have been replaced had not the disaster taken place. The matter of oil storage as a necessity to the Empire has been demonstrated and the losses will serve to bring appropriations for additional fuel tanks. No important ships were lost and the fleet is in excellent condition. The quake has not interfered with the Japanese naval program to any important degree and the future of the service is assured.

Great Sea Maneuvers Planned By Japan

Baltimore *Evening Sun*, 6 March, 1924.—Tokio, February 7.—Plans are being made for one of the largest demonstrations in the history of the Japanese Navy next October, when the combined fleets will stage the first annual naval maneuvers held in the past three years. The maneuvers were abandoned in 1922 on account of the Washington Conference, while the September disaster made it necessary to cancel the demonstration in 1923 as an economy measure.

With a view to stimulating the martial spirit of the navy forces and at the same time test the effectiveness of the new devices adopted since the World War, the navy authorities have decided to carry out an unusually

comprehensive program. The sum of 5,000,000 yen ($2,500,000) is reported to have been asked for this purpose.

More than 100 warships and other craft are to take part in the maneuvers, including the ships attached to the three main naval stations at Yokosuka, Kure and Sasebo, as well as the secondary stations. Included also will be two naval airships, about 100 airplanes attached to the naval station corps at Oppama, Kasumigaura, Sasebo and Omura; several new submarines, mine-sweepers, airplane carriers and other minor craft.

Several mimic battles, both on the water and in the air, are slated. A general plan of operations is now being drafted by experts of the naval board of command, according to reports. It is said that the arena of the demonstration will cover an extensive expanse of water, ranging from a strategic point in the Southern Pacific to the southern sea of Kyushu and the sea outside Tokio Bay. The operations, it is said, will include all those which an invading force might use in an attack upon Japan, and the combined forces will be divided into equal groups of "invaders" and "defenders" of the empire.

It is reported that the maneuvers will be divided into three periods and that in the third period the most interesting part of the program will be staged, including practical tests of the 16-inch guns, bomb dropping by the aerial forces, torpedo attacks and other thrilling scenes.

The battleships *Aki* and *Satsuma*, which are due to be scrapped in accordance with the Washington Naval pact, have been set aside as targets and will be destroyed during the demonstration.

The Prince Regent, in his capacity as commander of the navy, will attend and review the maneuvers, accompanied by high court officials and naval experts. Commanders and staff officers for the big demonstration will be appointed about the middle of September, it has been announced. At the close of the maneuvers a grand naval review will be held on October 17 in Tokio Bay, off the coast from Yokohama, with the Prince Regent as the reviewing officer.

The first period of scrapping warships in accordance with the Washington pact ends on February 16, according to a statement issued by the Navy Department. By that time Japan will have carried out that part of the agreement to the letter, according to naval experts.

To date the turret and conning tower of the coast defense ship *Asahi* have been removed and her steel armor is being dismantled to convert the vessel into a non-fighting craft. The *Mikasa*, flagship of Admiral Togo during the memorable battle of the Sea of Japan in May, 1905, which was badly damaged when she went aground during the September earthquakes, is being stripped of her turret and engines in the process of scrapping. The turret, funnels and main boilers of the battleship *Aki* are also being removed. This is one of the ships to be used as a target in the maneuvers.

The battleship *Satsuma*, now at Yokosuka, is likewise being stripped of her warlike fittings. The battleship *Settsu* and the cruiser *Ibuki* at the Kure naval station will have had their teeth removed by the end of the period. Out of four warships at Sasebo, the coast defense ship *Shikishima* and the cruiser *Kurama* have already been scrapped, the coast defense ship *Hizen* and one other vessel are in the process of dismantling. The battleships *Kateri* and *Kashima* at Maezuru have also been scrapped, with the exception of a part of their side equipment.

Japanese Disasters

Baltimore *Evening Sun*, 20 March, 1924.—Tokio, March 19.—A Japanese submarine rammed a warship and sank a few minutes later, according to dispatches received here.

London, March 19.—Four officers and forty men have gone down in a Japanese submarine which collided with a warship off the port of Sasebo,

on the west coast of the Island of Kiushiu, thirty miles north of Nagasaki, according to a dispatch here today.

The submarine sank in twenty-six fathoms of water.

Rescue workers are doing their utmost to reach the underseas craft in hope crew still may be alive.

(*Special Radio to "The Evening Sun."*)—Tokio, March 19.—Two officers and three sailors were killed in an explosion aboard the naval airship *SS-3* in Ibaraki Prefecture this afternoon during a flight between the Kasumigaura and Yokosuka naval stations.

The airship crashed to the ground and was consumed by flames. The loss is a severe one to the navy.

UNITED STATES

Other Nations Are Building Fifty-nine Treaty Exempt Ships While U. S. Builds None

Army Navy Journal, 23 February, 1924.—The statement by the Secretary of the Navy, showing ships of the treaty-exempt classes, actually laid down or for which a contract has been let since the signing of the Limitation of Armament Treaty, February 6, 1922, lists fifty-nine ships by name. It gives the tonnage, date laid down, place where building and percentage completed up to September, 1923.

The list is headed by the British 7,000-ton mine-layer, *Adventure*, and includes the French light cruisers, *Duguay Trouin, Primauguet* and *Lamotte Piquet*, the destroyer leaders, *Jaguar, Panthere, Tigre, Leopard, Lynx* and *Chacal*, and the destroyers, *Bourrasque, Cyclone, Mistral, Orage, Ouragan, Simoun, Siroco, Tempete, Tornade, Tramontane, Trombe* and *Typhon*, as well as the six fleet submarines and six submarines, first line.

The Japanese light cruisers, *Kako, Naka, Sendai, Jintsu* and *Yubari*, ranging in tonnage from 3,100 to 7,500, are included, as well as six numbered first line destroyers, three numbered fleet submarines, four river gunboats, a mine-sweeper, the submarine tenders *Chogei* and *Jingei* and the tankers *Naruto, Hayatomo, Ondo* and *Mamiya*.

The list names these fifty-nine ships or indicates each of them by its designated number, under the heading of the nation to which it belongs. There is one heading styled "United States." The entries under that heading are very easily digested. They read simply:

"United States: None."

Foreign Naval Construction Is Outlined For House Committee

The assumption of the Navy Department sub-committee of the House Appropriations Committee that other nations are not building treaty exempted ships is emphatically denied by the Secretary of the Navy. He announced plans of Great Britain, France, Italy and Japan for future construction, showing that the United States is the only great power that is ignoring naval construction.

In the report on the Naval Appropriation Bill it is set forth that "so far as this committee has been able to ascertain, none of the foreign powers which are parties to the treaty has begun the construction of any treaty exempted or permitted craft since the conference concluded."

As a disapproval of this statement the Secretary submits a table in which it is shown that Great Britain has laid down a mine-layer with a tonnage of 7,000; France, three light cruisers, seven destroyer leaders, twelve destroyers, six fleet submarines, six submarines, first line; Japan, five light cruisers, six destroyers, three fleet submarines, one mine-sweeper, two submarine tenders, four river gunboats and four tankers.

In commenting on the report of the committee the Secretary says, in part:

"The proposed building program of Great Britain as outlined in the parliamentary debates of January 21, 1924, by the First Lord of the Admiralty, calls for a total of fifty-two 10,000-ton light cruisers in the next ten years.

"It is proposed to lay down eight 10,000-ton light cruisers, three submarines, two destroyers, two gunboats, one submarine tender, one destroyer tender, one aircraft carrier and one mine-layer this year. This program has not been acted upon by Parliament.

"In addition to the ships shown in the tables, nine submarines have been authorized, the *Caiman, Phoque* and *Espadon* of 1,100 tons displacement each; and the *Thetis, Dors, Galatee, Nymphe, Eurydyce* and *Danae* of 600 tons each.

"The second half of the French building program now before the French Parliament proposes the laying down from July, 1924, to July, 1928, of the following six 10,000-ton light cruisers, fifteen 2,400-ton destroyer leaders, twenty-four 1,400-ton destroyers, two cruising submarines of 3,000 tons each, thirty fleet submarines of 1,300 tons each, and seven coastal submarines of 600 to 1,300 tons each.

"The Italian building program proposed to lay down from 1923 to 1928 the following units: Five light cruisers, twenty destroyers and twenty submarines. The four destroyers mentioned in the table as ordered are part of this program. On January 1 one light cruiser and four cruising submarines, which are also part of this program, were in process of being ordered.

"In addition to the vessels shown, Japan has building or authorized four cruisers of 10,000 tons, one light cruiser of 5,500 tons and three light cruisers of 7,500 tons each, besides twenty-five destroyers of 900-1,400 tons, eighteen first-line submarines of 550-960 tons each, and twenty fleet submarines of 1,000 tons and greater displacement.

"It is unknown how many of the above are actually under construction."

Very magnanimously, Representative Burton L. French, chairman of the naval subcommittee on appropriations, on February 21 acknowledged his error in the report which he submitted on the Naval Appropriation Bill. The error referred to is contained in the following statement:

"So far as this committee has been able to ascertain, none of the foreign powers which are parties to the treaty has begun the construction of any treaty exempted or permitted craft since the conference was concluded."

"In all probability Chairman French made this statement on account of the negative answer to the question as to whether any of these powers had laid down any 10,000-ton light cruisers since the signing of the treaty. Probably the first reference to the discrepancies in the report of the committee was made in the Special Washington Service News Letter appearing in the *Army and Navy Journal* of February 16. In this it was suggested that someone should broadcast a call for the Navy League and the friends of the Navy.

But this will not be necessary as far as Chairman French is concerned, for when his attention was called to the ships that are building, are being built under the treaty by other nations, he courageously acknowledged the error in his report. His fairness in the matter has created a splendid impression among friends of the Navy.

British Comment on U. S. Navy

Naval and Military Record, 20 February, 1924.—The annual Supply Bill for the American Navy has passed the Appropriations Committee, and although there is still the formality of presenting it to Congress to be complied with, it may be regarded as approved in its present form. It is true to say that nowadays no other navy holds the same degree of interest to our own sea service as does that of the United States. In no small

measure this is due to the incessant comparisons by which the Secretary, Mr. Denby, seeks to justify his ambitious programs. If Great Britain were the potential enemy of the United States Mr. Denby could not be more insistent upon the necessity for overtaking the higher all-round standard of war efficiency which, he alleges, the British fleet has attained despite a loyal adherence to the provisions of the Washington Agreement.

But, of course, there is another and more practical reason for this interest. American naval design is full of innovation. The material expression of the lessons of the war naturally appeals strongly to the professional mind. Our own Department of Naval Construction has tackled the legacy of problems in its own way—which service opinion is content to accept as the best possible way. Nevertheless, it is more than a mere matter of curiosity to see what forms of solution the experience and ingenuity of American designers devise as antidotes to the new methods of sea war.

The total expenditure recommended under the Naval Supply Bill for the coming financial year is £63,240,000, or about £10,000,000 more than the anticipated total of the forthcoming British navy estimates. The figures are £5,354,000 less than the amount allotted last year, and it is interesting to note that the Appropriations Committee have cut down the aggregate of Mr. Denby's original draft by £1,035,000.

The largest item, of course, is that which covers the progress of new warship construction. For the completion of about thirty vessels of various descriptions hard upon £7,000,000 is provided. The report states that on November 30 last there were still in an unfinished state one battleship, two aeroplane carriers, six scout cruisers, thirteen submarines, three fleet submarines, one gunboat, two destroyer tenders, one submarine tender, and one repair ship. The addition of these to the active fleet is provided for in the terms of the Washington Agreement.

For naval aviation no less a sum is provided than £3,393,000—figures which will stand in striking contrast to the very meager amount our own admiralty will be able to demand under the existing anomaly of dual control. Even this is less by £100,000 than the Navy Department originally asked, "because the development program recommended at Pearl Harbor, Hawaii, and the Canal Zone had not been authorized by law." This seems rather a quaint commentary upon a matter of strategical requirements.

Apparently the personnel is to be maintained at present strength, which is 6,469 officers and 86,000 men for the Navy, and 1,002 officers and 19,500 men for the Marine Corps. These figures are very much higher than the existent strength of the British naval personnel. At the same time, it is interesting to learn, from recent reports, that the Recruiting Department is experiencing the utmost difficulty in maintaining necessary numbers, and the actual strength of the United States sea personnel today is very much below authorized strength.

One passage of the Appropriations Committee's report will be read with particular interest in this country. It runs as follows:

That the president take appropriate steps looking to the consummation of a supplemental treaty to limit the construction by the leading naval powers of ships of the types which the existing treaty has not been extended to, or only controlled as to tonnage and gun power. Up to this time no formal conference has been held looking to such supplemental treaty.

If this means anything, in the present condition of world sea power, it is that Mr. Denby finds a new cause for concern in the proclaimed intention of the British Admiralty to lay down seventeen light cruisers, of the maximum size permissible (10,000 tons apiece) in the course of the next few years. Although many of our light cruisers are now comparatively low down in the scale of relative fighting value, yet we are still very much

stronger than any other naval power in these units. Therefore, such an addition as is now proposed would give us an immense superiority.

Probably the view of Mr. Denby is that if the president can be persuaded to take measures which may result in the wholesale curtailment, if not, indeed, the complete elimination, of this British program, his aim will be more easily, and quite as effectively, achieved as by proposing a competitive program. For one thing the Navy Secretary has made abundantly clear: he cannot tolerate the idea that the British Navy should keep its traditional supremacy at the expense of the United States Navy. It is not our business to reproach him for his patriotism. But the certain fact remains that the British light cruiser program has not been framed with any reference to what the United States is doing, or may do, and that should the President be influenced by the suggestion in the Appropriations Committee's report, he is likely to find himself up against what in his country is termed a very unsympathetic proposition.

In point of total tonnage, of course, American naval construction still in hand is vastly in excess of our own. But in point of war value the disproportion is very much narrowed down by the fact that we have two capital ships upon the stocks as against one in the United States. However, the sense of the committee is clearly against anything in the nature of competitive construction. For, following upon the passage already quoted, comes the following:

"So far as this committee has been able to ascertain, none of the foreign powers which are parties to the treaty actually has yet begun the construction of any treaty-exempted or permitted craft since the conference was concluded. America certainly should not be the first, and should exert its influence to prevent the necessity from arising to begin at all."

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Quitting office under circumstances which have few parallels in American history, Mr. Denby nevertheless left official life with the affectionate farewell of the entire service, of which he was head and with his friends convinced that he was the victim of an unreasonable hysteria. He left office, too, with an honor which has been accorded few Secretaries of the Navy, for he went from office a commissioned officer in the service in which he served with distinction in the World War. Tonight he is Major Denby, of the Marine Corps Reserves. He held the same rank when selected by President Harding to fill the Cabinet post.

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your acts as Secretary of the Navy. We beg to express our hopes and prayers for your future happiness.

While personal greetings of this kind were being exchanged, the globe was being circled by Mr. Denby's last official message to the men of the Navy and Marine Corps and civilian personnel wherever they might be:

Goodbye and God bless you.

EDWIN DENBY.

An offering of flowers heaped on the desk of the retiring Cabinet member bore this inscription on a card:

"Bon voyage from your comrades of the Navy and Marine Corps."

One of the last events marking the conclusion of his Cabinet career was Mr. Denby's farewell conference with Washington newspaper men.

"I would like to express my personal feeling about the press and the men of the press," said Mr. Denby, as he shook hands with the correspondents. "I just want to say that during my three years as Secretary of the Navy I have not at any time had the slightest suspicion of betrayal of confidence. I have nothing but the deepest appreciation and friendship for the men of the press.

"About the Navy—after three years at the very nerve center of the Navy and after some thirty-nine years of more or less union with the Navy—my respect, my confidence and my admiration are greater than ever before. I have been where all the meanness, all the self-seeking would have been apparent. But, I can say that I have never seen such a body of men so wholly devoted to the country."

The retiring Secretary expects to leave here Wednesday for Detroit.

The U. S. Naval Secretary

Naval and Military Record, 27 February, 1924.—The resignation of Mr. Denby in consequence of the oil scandal is a serious loss to the United States Navy, of whose interests he had shown himself a zealous and vigilant guardian since he took office as Naval Secretary three years ago. The officers were grateful to him for cancelling certain irksome restrictions imposed upon them by his predecessor, Mr. Daniels, who seems, in fact, to have made himself very unpopular with all ranks and ratings. So far as policy is concerned, Mr. Denby aimed at maintaining the United States Navy at the standard of relative strength to which it was entitled under the treaty, and he did not accept the view that this standard should be confined to capital ships. He desired equality with the British Navy in all types of ships. His repeated comparisons between the two fleets evoked some adverse comment on this side, but it is difficult to see how they could have been avoided, and they were never made in such a way as to suggest that Mr. Denby himself regarded war with Great Britain as a probable contingency. In advocating an increase in the elevation of United States naval guns which would enable them to shoot as far as the guns of the British Fleet he was simply voicing the opinion of his professional advisers.

Chief Justice Wilbur Leaving Soon For East To Become Navy Head

Daily Palo Alto *Times*, 14 March, 1924.—San Francisco, March 14—Chief Justice Curtis D. Wilbur of the State Supreme Court, nominated by President Coolidge to be Secretary of the Navy, will go to Washington as soon as the President summons him, although his own plan is to wait confirmation by the Senate.

He will have to resign his court office to accept the new post rather than to take out leave of absence.

NOMINATION GOES TO SENATE.—Washington, March 14.—The name of Curtis D. Wilbur, chief justice of the California Supreme Court and a graduate of the naval academy, selected by President Coolidge to succeed Edwin Denby as head of the Navy Department, was submitted to the Senate today by Coolidge.

Judge Wilbur was tendered the cabinet post after Judge William S. Kenyon of Iowa had declined the appointment because he felt he lacked "essential qualifications" for a naval secretary. Both jurists had been considered also in connection with the attorney generalship, it is understood, and a belief prevails that if Harry M. Daugherty should resign, an offer of his place in the cabinet would prove more acceptable to Judge Kenyon.

EXECUTIVE IS ANNAPOLIS GRADUATE.—Curtis D. Wilbur was born in Boonsboro, Iowa, May 18, 1867. His father and mother had moved to Iowa from Western Missouri. His father, Dwight Wilbur, was a soldier in the Ohio volunteers during the Civil War and was captured at Harper's Ferry.

In 1883 the Wilburs moved to Jamestown, N. D., where young Wilbur met his future wife, Miss Olive Doolittle, a native of New York, who was then teaching school in Jamestown.

In 1884 Curtis Wilbur was nominated from the territory of the Dakotas as a delegate to Annapolis Naval Academy and he entered the naval academy in May of the same year.

Wilbur was graduated from Annapolis in June, 1888, and resigned his commission as an ensign in the Navy in September of the same year. During the time he was a cadet at Annapolis. Wilbur took three cruises on the *Constellation*, was a member of the naval academy football team and established for himself an enviable record as an athlete.

After resigning from the Navy Wilbur came to California and during 1888 and 1889 taught school in Los Angeles at McPherson Academy, a preparatory school for Occidental College.

On October 13, 1890, Wilbur was admitted to practice law and for nine years engaged in general practice in Los Angeles when he was appointed deputy district attorney of Los Angeles County and handled the civil cases for the county. In 1908 Wilbur was elected to the superior court of Los Angeles County and re-elected in 1914, and again in 1918, the last time with the highest majority ever given to any office.

In 1918 Governor Stephens appointed Judge Wilbur associate justice of the California Supreme Court and in the fall of the same year he was elected both for the unexpired term for which he was appointed and for additional full term of twelve years.

Justice Wilbur's last elevation came in 1922 when he was elected chief justice of the Supreme Court of California.

Curtis D. Wilbur is a brother of Dr. Ray Lyman Wilbur, president of Stanford University.

WAS DISTINGUISHED AS NAVAL CADET.—Judge Wilbur was particularly distinguished as a naval cadet.

So states his classmate, Captain E. L. Beach, lecturer in naval history at Stanford University, and former commandant of Mare Island Naval Yard. Commenting on the appointment of the jurist to the office of Secretary of the Navy, Captain Beach said today:

"Chief Justice Curtis Dwight Wilbur, who has just been appointed Secretary of the Navy, entered the Annapolis Naval Academy as naval cadet in 1884, graduating in 1888. Before his graduation he had determined not to follow the Navy as a career, but to become a lawyer, so, with that purpose in view, he resigned from the Navy on the day he was graduated and immediately began the study of law.

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"The enterprise has proved the most disastrous in shipping history, and Great Britain's supremacy is now unchallenged," says the *Daily News.*

The *Daily Express* declares "it is an open secret that the American Government has merely been running these vessels until it could find a suitable buyer. The loss, which has been enormous, has been estimated at $1,250,000 weekly."

Preferential Aid For Ships Under U. S. Flag Sought

Baltimore *Sun.*—Washington, February 24.—The Foreign Relations Committee of the Senate is being flooded with protests against ratification of the new commercial treaty negotiated by the United States and Germany. The protestants urge that the Senate strike from the agreement provisions which would make it impossible during the next ten years to extend any preferential aid to the American Merchant Marine.

The Merchant Marine act of 1920 contains a provision for preferential aid to American ships in the form of preferential treatment, directing the president to take the steps necessary to abrogate such parts of existing commercial treaties as forbid such discrimination.

When President Wilson flatly refused to carry out this mandate, he was denounced roundly in Congress. President Harding was expected to reverse Mr. Wilson's policy, but he found that to do so, would involve the Government in endless trouble and invite foreign retaliation.

President Coolidge has not seen fit to taken any action looking to the enforcement of this provision of law. With Secretary of State Hughes looking after foreign relations, no change in policy is expected.

But indications are multiplying that members of the Senate intend to force a show-down in connection with the pending agreement with Germany.

Opposition to ratification of the German Treaty has been manifested strongly by American commercial and shipping interests. Senators Jones, of Washington, author of the Merchant Marine act; Fletcher, of Florida, and Ransdell, of Louisiana, oppose ratification of the treaty until this provision shall have been striken out.

Vice-chairman Plummer, of the Shipping Board, likewise has appeared before the committee and voiced strong opposition to action which, he holds, not only would tie the hands of Congress but also be in distinct conflict with the law as laid down in the Merchant Marine act.

This line of argument has touched Senators on a tender spot. When they wrote into the Jones law the provision for discriminating duties in favor of American ships, it was on the theory that such arrangement could not fail to throw largely increased tonnage to our ocean carriers.

Recently President Coolidge indicated he was opposed to extending the American coastwise laws to the Philippines, thus definitely side-tracking another provision of the Merchant Marine act, designed to aid development of a permanent American Merchant Marine. Senators were highly displeased by this attitude, even though the President showed that to bar all foreign ships from trade between Philippine and United States ports would create a situation similar to one created many years ago when relations between the United States and Great Britain were strained over British restrictions on our shipping.

Ship Rule Arouses Britain and Japan

Philadelphia *Ledger.*—London, March 19.—The Interstate Commerce Commission's decision to allow preferential railroad rates to American goods shipped in American vessels has been greeted with lively interest in British shipping circles.

According to the *Morning Post* correspondent at Liverpool, the step is declared to be in contravention of a convention recently signed at Geneva and introduced by American delegates.

The correspondent quotes an unnamed shipping authority as saying that it is "merely another way of bolstering up the United States Shipping Board to justify its existence," adding that while on the face it looks like a very good thing for American shipping, the American exporter, if confined to American vessels, will likely find his business upset. At the same time, according to this authority, there are not enough American ships to meet the demand.

The speaker also suggested that British Merchants in retaliation might refuse to buy goods unless carried in British or non-American bottoms, and concluded:

"The whip hand in the matters seems to be held by any other nation than America."

Another authority is quoted as expressing belief that the decision will have very little weight in view of the failure of the United States heretofore to maintain a mercantile marine of its own.

The Liverpool Chamber of Commerce is holding a special meeting to consider the matter.

Tokio, March 19.—(By A. P.)—Japanese Minister Hanihara at Washington today was instructed to protest anew against execution of Article 28 of the United States shipping laws providing for preferential railway freight rates on cargo carried to and from the United States on American vessels. The Foreign Office here contends that provision, which has been suspended since 1920, violates Articles 1 and 6 of the treaty of commerce and navigation of 1911.

Cabled reports from Washington of the decision to enforce Article 28 on and after May 20 created intense excitement in Japanese shipping circles. The Department of Communications at once urged Foreign Minister Matsu to take diplomatic action. Conferences between officials of the Foreign Office and the Communication Department are continuing. It was indicated that reprisals in customs on railway charges are being considered in the event satisfaction is not obtained through diplomatic channels.

Government and shipping men assert they foresee serious damage to Japanese shipping in the Pacific if the measure is enforced. Leading shippers, however, express doubt that its enforcement is practicable. Osaka Shosen Kaisha and Nippon Yusen Kaisha officials believe it is impossible to invalidate their present agreements with the Chicago, Milwaukee and St. Paul Railway and the Great Northern Railway, respectively. Communications Department officials point out that eighty per cent of America's imports become railway freights, while fifty per cent of her exports also are carried by railways.

The Japanese press generally voices indignation or alarm over the matter.

SEE NO BEARING ON TREATIES.—Washington, March 19.—The view of the Washington Government appears to be that the new and lower through rates on goods exported or imported in American ships have no bearing on treaty obligations. Commerce Commission officials expect the decrease to be borne entirely by the railways, leaving steamship rates, when considered by themselves, at their present levels. Thus, it is contended, the arrangement in its practical operation is one relating to domestic rates only, a subject not to be regulated by treaty.

But Shipping Board officials were not surprised at the unfavorable foreign comment regarding the ruling. Commissioner Thompson, author of the board's resolutions certifying that adequate American tonnage ex-

isted to warrant operation of the preferential rates, declared objection raised by Japanese shipping interests undoubtedly were made "to protect the preferential contracts in existence between the Chicago, Milwaukee and St. Paul Railroad and Osaka Shosen Kaisha and the Great Northern Railway Company and Nippon Yusen Kaisha, which private contractual relation gave these Japanese shipping lines the same benefit the application of Section 29 would give to American flagships.

Commissioner Thompson said he personally could not see "how there can be protest against a statutory establishment of a beneficial clause of the Merchant Marine Act by those who, under private contract, are receiving exactly the same preferential treatment now objected to by them when applied to an ocean competitor."

In Aid of American Shipping

Baltimore *Sun*, 19 March, 1924.—Inadequate as the Jones Shipping act of 1920 has been in working out a permanent solution of our merchant marine problem, it at least can be said in its defense that it has not yet had a thorough test. The Shipping Board is only now getting around to the point of putting into effect preferential rail-and-water rates for American exports and imports traveling in American bottoms; yet this was one of the main features of the law when it was under discussion in Congress. The rates will become effective on May 20 and their aid in diverting business from foreign to American ships will thereafter become apparent or be proved of no avail.

The fundamentals of the shipping situation have not changed since the Jones act was passed; nor are they likely to change. It costs much more to construct and operate American ships than it does foreign ships. The problem of all shipping legislation has been to neutralize this handicap against our merchant fleet. Former Chairman Lasker of the Shipping Board favored the subsidy method; he overlooked the fact that legislation already at his hand gave him certain forms of indirect subsidies, or discriminations, and never tried them out.

In 1923 American ships handled only twenty-four per cent of our trans-oceanic exports and seventeen per cent of our corresponding imports, and Mr. Plummer declares the percentages are even lower now. In other words, it is high time, he believes, that every possible means, every possible preference, be invoked to bolster the waning cause of the American merchant marine.

Establishment of the preferential rail-and-water rate will touch only one part of the situation. The Fleet Corporation deals with another, as it proposes the first of a number of consolidations of Government freight services. These two steps, whose outcome is still to be determined, illustrate the twin problems of the Shipping Board—to gain the confidence of American exporters and importers and to cut down its own costs of operation.

How far it can go in solving these problems still remains for the future to show. Real progress cannot yet be announced. Congress appears utterly indifferent to the situation and the Shipping Board is having troubles of reorganization. As at any time during the past five years the basic requirement without which real progress is impossible, is the creation of a sensible program of operation and adherence to that program.

ENGINEERING

A Three-bladed Flettner Rudder

The Ship Builder.—A recent development in the application of the Flettner auxiliary blade to rudders reported in the German journal *Werft-Reederei-Hafen* is the use of this device with a three-bladed rudder, as

illustrated in Fig. 1. A rudder of this design is to be installed in a motor cargo ship of 4,500 tons deadweight now being built at the Germania Werft, of Kiel, for Flensburg owners. An outline elevation of this vessel is shown in Fig. 2, upon this illustration being also shown the outline of an equivalent partially-balanced single-blade rudder without an auxiliary Flettner blade. Fig. 3 shows the stern contour and rudder on a larger scale.

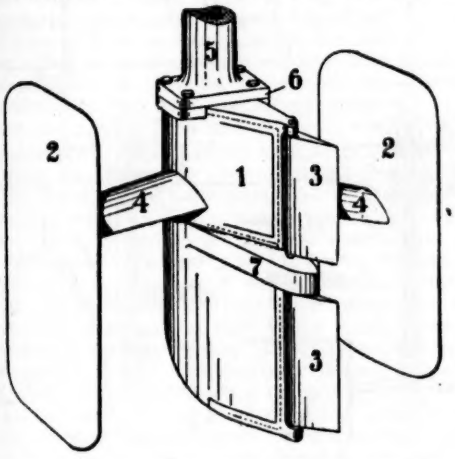


FIG. 1.—THREE-BLADED FLETTNER RUDDER

In addition to the main advantage of reduced power required for steering obtained by the Flettner device, advantages claimed for the three-bladed design are a more effective disposition of rudder area, full immersion of rudder at ballast draughts, and, owing to the deeper immersion of the blades, less liability to damage by ice or floating objects. The design has been thoroughly investigated by model experiments at the Hamburg Experimental Tank, and satisfactory results with the actual installation are confidently expected.

The Flettner rudder of the motor ship *Odenwald* is stated to have given excellent results on service.

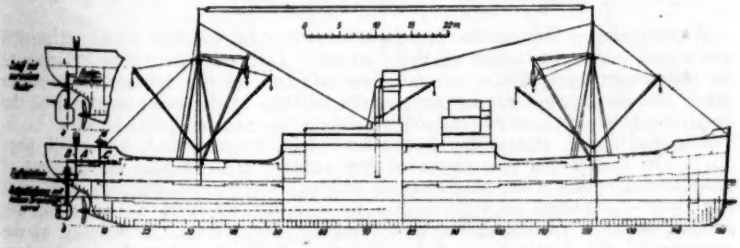


FIG. 2.—ELEVATION OF FIRST SHIP TO BE FITTED WITH FLETTNER THREE-BLADED RUDDER

Schiff mit normalem Ruder—Ship with normal rudder.
Rudermaschine—Steering engine.
Tiefladelinie—Load draught.
Ballasttiefgang mit halbem Brennstoffvorrat—Ballast draught with half fuel consumed.

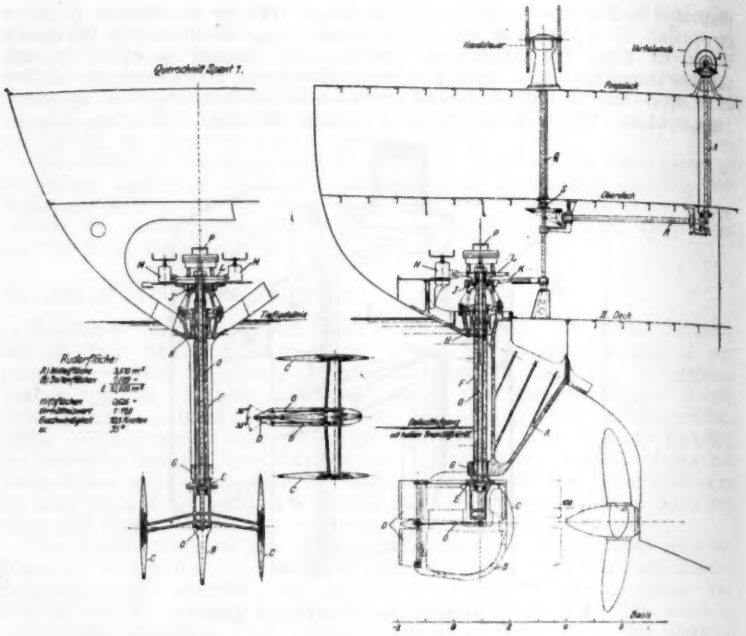


FIG. 3.—STEERING INSTALLATION WITH THREE-BLADED RUDDER

Querschnitt Spant 1—Section at frame 1.
Handsteuer—Hand gear.
Verholwinde—Warping winch.
Ballasttiefgang mit halbem Brennstoffvorrat—Ballast draught with half fuel consumed.
Ruderfläche—Rudder area.
Mittelfläche—Middle area.
Seitenflächen—Side areas.
Hilfsflächen—Auxiliary areas.
Verhältniswert—Area ratio.
Geschwindigkeit—Speed.

Unbalanced Rudders of Twin-Screw Ships

Engineering.—During the last two years a great amount of experimental work has been conducted at the National Tank on questions relating to the maneuvering qualities of ships as affected by the types of rudder in use. The first paper giving the results of this work was presented to the Institution of Engineers and Shipbuilders in Scotland by Messrs. G. S. Baker and G. H. Bottomley last March (see *Engineering,* vol. cxiii, page 364). In that paper the phase of the subject treated was the actions of unbalanced rudders on single-screw ships. Since then, further test work has been conducted in relationship to twin-screws, and a paper on this section of the investigations was read by Mr. G. H. Bottomley at the meeting of the Institution of Engineers and Shipbuilders in Scotland on Tuesday last. In this later work the form of ship used for the earlier investigations was retained, and thus the only changes introduced were those incidental to the alteration of the propeller arrangements. As no screw aperture was necessary with the twin-screw equipment, it was filled in with a flat metal plate. Spectacle frames and bosses to take the screws were fitted to the model, and the propellers were connected through gear-

ing to a motor placed inside the model. The tests generally were conducted with four different forms of rudder, two of which had the stern edge vertical, but were of different widths, while the other two were of a form approaching a triangle, but set in the one case with the wide part well down in the water and, on the other, with the wide part at or near the water level. In addition, a further series of tests were conducted with a similar triangular one of greater width to determine the effects of propeller race. The tests were conducted generally at two speeds corresponding to eight and twelve knots respectively for the ship, the revolutions for each speed being noted from a tachometer attached to the propeller shafts. When propelled at these revolutions, the model was towed by the tank carriage as the rudder was put over, and all measurements of rudder forces and turning movements were then made.

From the results it was seen that the triangular rudder with the major part of its area near the water line gave a marked drop in the pressure on the rudder and in the couple of the water forces acting on the ship just before she began to move off her course, which was known as the ship turning moment. This seemed to support the conclusions of Mr. Foster King, which he based on experiments he conducted in 1902, with a series of triangular rudders. In his tests it was noted that when rudders with the broad part at the water line were used on twin-screw vessels the results showed relatively greater loss than in the single-screw vessels. The distribution of the area so that a large part of it was swung into the race of the propeller as the rudder was put over increased both the pressure and the ship turning moment. Another deduction from Mr. Bottomley's tests was that the forward movement of the water at the stern due to the ship, reduced the torques and pressures on the rudder, which were obtained at the ship speed in open water, roughly by forty-five per cent. The observed effect of the twin propeller races on the rudder was very small, and, in fact, almost negligible until the rudder had been put over to about twenty-five degrees. At thirty degrees of helm the increase of ship-turning moment over the value when the screws were not working was not more than twelve per cent, which was very small compared with the 100 per cent change shown in the single-screw tests. The corresponding increases in rudder forces and torques were also very small.

The changes in the rudder torque and ship-turning moments produced by increasing the diameter or pitch ratio of the propellers were also found to be very small, and shifting the propellers to other positions nearer or farther from the hull had no effect, which indicated that the pressure increase due to the screws was the same in the race column for some distance aft, but it was not yet known at what distance the thrust would begin to drop. Experiments were conducted by Mr. Bottomley to obtain a comparison of the effects produced when the screw propellers turned inwards or outwards. These showed that when the propellers turned inwards the torque and pressures on the rudder were increased by roughly fifteen and twenty per cent for fifteen and thirty degrees of helm respectively, and the ship-turning moment was increased by from five to nine per cent over those obtained when the propellers turned outwards. It must be recognized that to take full advantage of this increase in ship turning moment involved the use of greater stress on the rudder stock of the unbalanced rudder. With the propellers placed in open water behind the fin plate, there was practically no difference between the effects of outward and inward turning. Tests were also conducted to determine the effect of closing the screw aperture of the rudder. When the screws were not working, the only differences between the single and the twin-screw ships were the screw aperture and the bossings. If twin screws were used, the only effect of closing the rudder aperture was to prevent the stream lines passing through it and enable the rudder, when put over, to hold

water against the deadwood. When the screws were idle, this filling in increased the rudder pressures and torques by twenty and twenty-five per cent, and the ship-turning moments by fifty and fifty-five per cent for fifteen and thirty degrees helm respectively. No experiments were conducted to determine the effects of the bossings, and it was consequently not known to what extent the results were attributable to their presence.

With the twin screws working behind the model, it was shown that the race effect was small, while behind the single screw vessel it was large. The results of the tests also showed that, on twin-screw ships, the torques and forces on the rudder were practically one-half of those operative when single screws were used, but the ship-turning moments were only reduced by about twenty-five and fifteen per cent for fifteen and thirty degrees helm respectively. The relatively smaller loss in turning effect compared with torque on the rudder stock was believed to be due to the presence of the solid deadwood of the twin-screw ship. From tests with the model running astern, it was deduced that, if the torques on the rudder stock when going astern should not exceed those when going ahead, the speed of the ship astern should not be greater than six tenths of the ahead value.

The results of these experimental investigations at the National Tank are of considerable importance, and the existing knowledge of the effects produced in the maneuvering of ships is being gradually extended as the work proceeds. The next questions which are to be tackled are the actions caused by the variations of prismatic coefficients for both single- and twin-screw vessels and a comparison is to be made of balanced and unbalanced rudders.

Something New To Keep Us Warm

Literary Digest.—The latest heat-retaining material is balsam-wool, made of the fibers of the pine and other coniferous trees. Howard F. Weiss, a wood-products engineer, of Madison, Wisconsin, who writes on this subject in *Chemical and Metallurgical Engineering* (New York), tells us that one of the most valuable properties of wood is its resistance to the passage of heat. It is for this reason, he says, that wood appeals to us for a variety of uses, such as furniture, tool-handles, rims for automobile steering-wheels, gun-stocks, floors, etc. He goes on:

"The reason wood is so resistant to the passage of heat is because it is made of a great mass of hollow fibers cemented together. These lock up an enormous number of air-cells, so small that the air in them can not readily circulate. The air is, therefore, commonly referred to as being 'dead,' and dead air is one of the most effective heat insulators known.

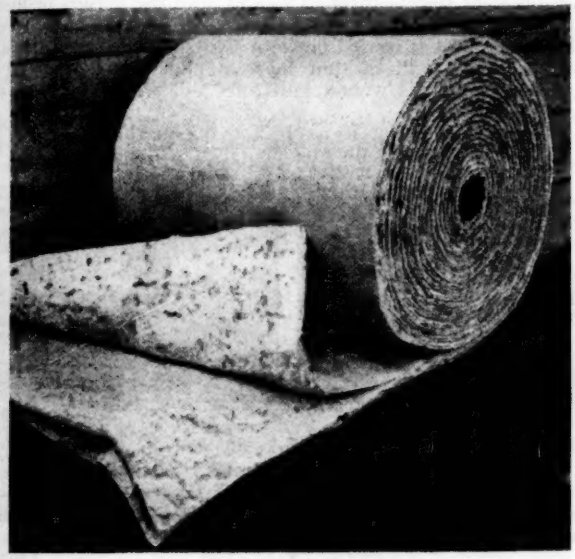
"The wood substance itself—that is, the material out of which the wood-cells are made—is comparatively heavy, and if solid wood substance is placed in water it will immediately sink. What keeps wood afloat are the millions of dead air-cells. Different woods vary in weight, because the heavy woods are largely solid wood substance, while the lighter woods have a large number of dead air-cells.

"We would expect to find that the lighter woods are better heat insulators than the heavy woods. This is exactly the case. The U. S. Bureau of Standards has found that balsa, which is one of the lightest woods known, shows remarkable resistance to the passage of heat. A board of balsa wood one inch thick is as resistant to the passage of heat as a maple board more than three and one quarter inches thick.

"As this problem of preventing the passage of heat is of immense importance in our daily life, not only in the construction of ice-boxes, refrigerator cars, pipes, etc., but in the building of comfortable homes, the C. F. Burgess Laboratories undertook a series of experiments to see if the fibrous structure of wood could be rearranged so as to build up a

material that would be lighter than any wood heretofore known, and that would have a greater number of dead air-cells. It seemed logical that if this could be done a very efficient heat-insulating product would be the result.

"After months of experimenting, the new product was finally developed. The material, to which the name balsam-wool has been given, weighs less than one-half as much as balsa wood, and about one-fourth as much as cork. It showed the remarkably low thermal conductivity of six one-tenth British thermal units, as against eight three-tenths for balsa wood and seven four-tenths for pure cork; and these latter are the most efficient heat insulators made from wood heretofore known.



MORE WOOLLY THAN WOOL

A roll of the new insulating material, balsam-wool, made up of shredded wood fibers. It is more heat resistant than any natural wood.

"About 2,000,000 square feet was used in the construction of homes throughout Minnesota last fall, and the returns now coming in from home-owners show that the product is doing all that the laboratory tests indicate it would do—namely, saving these home-owners from thirty to forty per cent in coal, and contributing to maintenance of comfortable, healthy quiet homes.

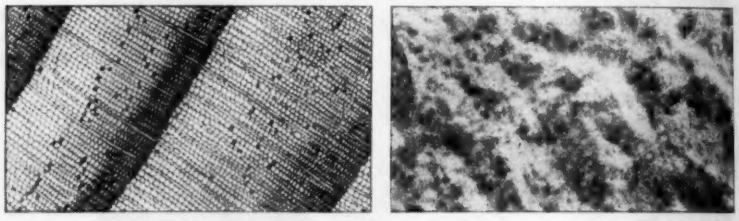
"Balsam-wool can be made from those products of the sawmill too small in size to have commercial value. For its manufacture the slabs, edgings, trinmmings, etc., left after the logs have been cut into lumber, box-shooks and lath, are reduced to slivers not over one-half inch in length. The shredded wood is then boiled in an alkaline solution to loosen the cementing material which binds the wood fibers together. The next step is to comb the fibers in what is known as a beating-engine.

"Having thus separated the individual fibers the next step is to build

them up in a different arrangement. Before doing this, however, the fibers are passed through a fireproofing solution. The fireproofed fibers are prest until they hold only about forty per cent moisture after which they are passed through a drier and blown to fiber-hoods so designed that the stream of fibers is split into fan-shaped curtains which blow against a traveling wire screen. The fibers pass through an atmosphere of cement and upon striking the screen are sticky, so that each is cemented to its neighbor. However, the arrangement of the fibers is such that they project in all three dimensions so that the finished product has no grain as has the natural wood. It is because of this formation that the product is so light.

"The endless wire screen carries the layer of wet sticky fibers with their water-resistant cement through a drier, and the fibrous product comes out at the other end in a continuous sheet, six feet wide and three-fourths inch thick. This sheet is passed between two sheets of tough kraft paper, coated on the inside with a thin layer of hot water-resisting asphalt. After this, the product is wound into rolls and wrapt with heavy layers of waterproofed paper."

In this form the product is ready for the market, and for the carpenter's use for insulating walls and floors.



Illustrations by courtesy of "Chemical and Metallurgical Engineering" (New York)

NATURAL AND "MADE-OVER" WOOD, SIDE BY SIDE IN CROSS-SECTION

At the left a section of coniferous wood, showing its great number of air-cavities. At the right a section of balsam-wool with from 3 to 25 times as many cavities as natural wood. The new substance can be made from sawmill waste.

AERONAUTICS

Progress Toward 1,000 Hp. Aircraft Engines

By Glenn D. Angle, *Aviation*, 25 February, 1924.—The effectiveness of any military airplane used for bombing operations can be measured by its useful load. Besides the crew and its equipment, useful loading consists of bombs and fuel in proportions determined by the radius and nature of these operations. The amount of useful load, at any given air speed, depends upon the available horsepower in excess of that necessary to lift the airplane itself, hence the term effectiveness can be reduced to available horsepower, and we can at once understand the military necessity of increasing the power output. Incidentally, bombing airplanes, with a few simple alterations, can be converted into passenger and freight carrying ships, therefore the development of high-powered airplanes is also important in our progress toward commercial air travel.

In the choice of power plants, the single engine is known to have certain advantages over multi-engined installations delivering approximately the same horsepower. Perhaps the most important of these is the reduc-

tion of parasite resistance. The large engine, when installed as a tractor, requires little or no increase in the usual dimensions required for the airplane fuselage, while the nacelles containing the engines of an inter-plane installation add directly to the resistance of forward motion.

Separate controls are required to each engine, therefore the duties of the pilot become more difficult as we increase the number of engines to be used. Remote controls to engines installed in the wings are not always simple to adjust nor to maintain in satisfactory operating condition. Moreover duplication of parts naturally effects a weight increase, not to mention the increased weight of the structure necessary to install the engines in these remote positions. It is perhaps safe to state that no multi-engined installation can be built as light as one with a single engine—assuming, of course, that the same power is being delivered—and furthermore that a single large engine unit can be designed heavier per unit of power output, with a view of greatly increasing its reliabiliy, so that the airplane with this engine installed need weigh no more than one with two or more exceptionally light power plants.

The differences in opinion on the single versus multi-engine installation have been based almost entirely on the question of reliabiliy. Attention has just been directed to the fact that the large engine can be made more reliable without effecting an increase of total weight. Furthermore, it has been proven by test that a bi-motored airplane cannot fly satisfactorily with only one engine functioning. We must conclude, therefore, that we have no greater reliability, on the supposition of engine failure, unless three or more equally reliable engines are employed.

Apparently the development of large power units for both military and commercial aircraft is justified and the question now arises as to what has been done along this line by the U. S. Army Air Service. Numerous reports have come from abroad regarding the European development of large bombing engines, whereas very little information has been circulated concerning similar developments at home. As a matter of fact, our Air Service has been actively engaged in the design and development of large bombing engines ever since the year following the signing of the Armistice. That results have been obtained, in keeping with the efforts expended, can best be judged by the reader from the following brief comments on the various engines of 600 or more horsepower that have been designed and constructed to date.

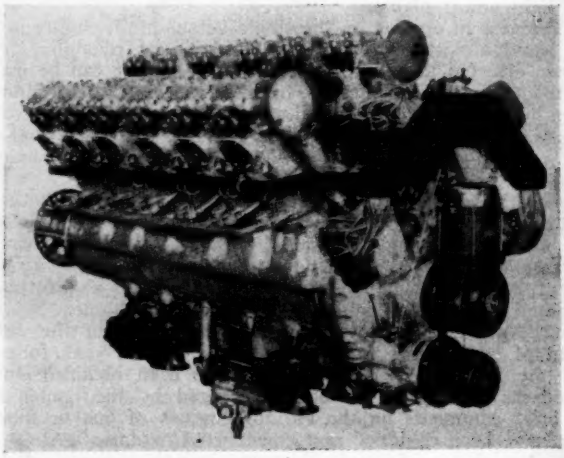
Records show that so far only thirteen airplane engines, rated not less than 600 hp., have actually been designed and built. Seven are of French design, three are British, two are American, and one is Italian. As far as can be determined from the information available, only six of these engines have received any degree of development. Three engines are of British design, and the other three were produced in France, Italy and the United States.

In the late war, the Germans were fortunately situated so that they could conduct bombing raids on non-combatants with their Zeppelins and airplanes by comparatively short flights. On the other hand, the Allies, in order to be able to retaliate for these barbarous acts, had to fly much greater distances before reaching German territory. This situation was keenly felt, and the necessity for the development of larger engines was perfectly obvious.

Messrs. Rolls-Royce, who are well-known British automobile and airplane engine manufacturers, were perhaps the first in England to be assigned the task of designing and building a bombing airplane engine. The results of their efforts, the "Condor," would no doubt have been ordered produced in quantities had it not been for the termination of hostilities. This engine is a twelve-cylinder Vee type of approximately 2,138 cu. in. piston displacement. The propeller is driven through reduc-

tion gears, and the dry weight is reported to be 1,336 lb. This engine was originally rated 600 hp. at its normal speed, but the latest reports show that 650 hp. can be normally developed at 1,900 r.p.m. At the latter rating, a creditable figure of 2.06 lb./hp. is obtained. Continued development on this engine has finally brought it to a point of refinement equal possibly to any other of its particular class in Europe.

Previous to the completion of the first Rolls-Royce "Condor," in fact about June, 1917, the Fiat A14 engine made its appearance in Italy. This engine was also a twelve-cylinder Vee type but had provision for mounting the propeller directly upon the crank-shaft instead of driving at a reduced speed through gears. It was larger than the "Condor," having a piston displacement of 3,488 cu. in., and was reported to weigh 1,740 lb. The type A14 engine is normally rated 650 hp. at 1,550 r.p.m., or 2.68 lb./hp., but is reported to actually deliver better than 700 hp. at its normal speed. Although this engine is rather bulky and heavy for the power delivered,



MODEL W1A 700 HP. AIRCRAFT ENGINE, DESIGNED AND BUILT BY THE ENGINEERING DIVISION, AIR SERVICE

and may not be inherently well suited for the requirements, nevertheless it is the greatest contribution from Italy in the big engine class and has the distinction of being the first engine of its size ever flown. Doubtless, more hours have been flown with A14 engine than any other of over 600 hp.

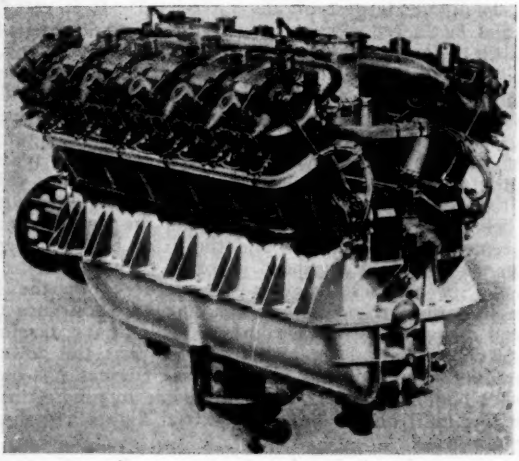
The largest program of bombing engine development was conducted in France. Altogether six types were represented. The Renault and Peugeot establishments confined their efforts to the twelve-cylinder Vee forms with direct driven propellers. Both engines were expected to deliver 600 hp., although the former was normally rated at 500 hp. The Renault had 3,359 cu. in. piston displacement and was reported to deliver 600 hp. at 1,650 r.p.m. This engine weighed 1,168 lb., or 2.33 lb./hp. at normal rating, and 1.95 lb./hp. at the greater output. The piston displacement of the Peugeot L41 engine was 2,502 cu. in., and its normal speed 1,600 r.p.m. The reported weight—1,270 lb.—gives a value of 2.11 lb./hp. Very little is known of the merits and serviceability of either of these engines.

An experimental eight-cylinder Vee type of 2,612 cu. in. piston displacement was built by LeMaitre and Gerard. This engine was rater 700 hp. at

1,600 r.p.m., and was reported to weigh 1,260 lb., or 1.8 lb. per rated hp. Claims for this power output were based, no doubt, upon the improved performance expected with the special means provided for cooling the exhaust valve. There are reasons for doubting the success of this scheme, these being further substantiated by the fact that no reports have been received recently regarding further developments.

The pioneer radial-engine builder, Anzani, designed and constructed a twenty-cylinder water-cooled radial engine of 2,818 cu. in. piston displacement, rated at 600 hp. This engine was said to develop 650 hp. at 1,700 r.p.m., and 700 hp. at maximum speed. The objection common to all radial engines applies to this design; namely, head resistance in too great proportion to the power delivered. No information is at present available with reference to the further development of this engine.

The Panhard-Levassor Automobile Works of Paris have constructed a sixteen-cylinder engine of the double Vee type, which is composed of



FIAT A14 650 HP. ENGINE, PRODUCED IN 1917, WHICH WAS THE PIONEER OF THE HIGH POWERED AIRCRAFT ENGINES

four rows of four cylinders each, with an included angle of forty-five degrees between adjacent rows. This engine has a piston displacement of 2,740 cu. in., and is reported to develop 650 hp. at 1,600 r.p.m., and 700 hp. at 1,700 r.p.m. It is said to weigh 1,433 lb., or 2.05 lb. per maximum hp. Considerable trouble was experienced during the short preliminary tests of this engine and it is possible that the project has been abandoned.

The largest engine ever designed in France is the Lorraine-Dietrich twenty-four cylinder W type composed of three rows of eight cylinders, with the two outer rows set at sixty degrees to the center vertical row of cylinders. The piston displacement is 3,649 cu. in., and the output is estimated 1,000 hp. at 1,600 r.p.m. The weight is optimistically estimated at 1,870 lb., or 1.87 lb./hp. The work on the design of this engine was undertaken prior to the Armistice, but it is doubtful if the engine was ever constructed or tested. A wooden model was exhibited at the International Exhibition in Paris during December, 1919, it being in reality a double

form of their twelve-cylinder W type rated at 500 hp. In the light of existing knowledge on the requirements of bombing engines, this design does not appear to combine the best characteristics.

The Farman eighteen-cylinder W type engine of 600 hp. is evidently the only one of the large French designs that is at present receiving much attention. This engine is extremely heavy—according to reports it weighs 2,080 lb., or 3.46 lb./hp.—and for this reason alone the extent of its usefulness is rather limited. It is interesting, however, to note that, out of seven designs, the one showing the largest weight per horsepower should survive. The Farman engine was designed after the war and, as a result, no doubt, incorporates later ideas and more closely meets the requirements in engines of this class. It is provided with a reducing gear for the propeller which can be supplied in any one of four ratios as desired.

Since the war, two other British firms have designed and built engines of large output. The Sunbeam Company has a twelve-cylinder Vee type engine known as the "Sikh." This engine has a piston displacement of 4,033 cu. in., being the largest of any on record. It is rated 850 hp. at 1,400 r.p.m., and has a reduction gear giving a normal speed of 920 r.p.m. to the propeller. The weight is reported to be 1,952 lb., or 2.3 lb./hp. This engine is intended for lighter-than-air craft and consequently cannot be directly compared with some of the other engines described.

Perhaps the greatest contribution to large engine development in England is the "Cub," which was designed and built by D. Napier and Son, Ltd. This engine is a sixteen-cylinder X type employing reduction gears for driving the propeller. The four rows, each of four cylinders, are arranged in the form of an irregular cross, the angle between the two upper rows being less than the angle between the two lower ones. The piston displacement is 3,681 cu. in., and the rated brake horsepower 1,000 at 1,800 r.p.m. The weight has been reported to be 2,240 lb., or 2.24 lb. per rated hp. Six of these engines were ordered by the British Air Ministry, but it is understood that so far a 50-hr. endurance test has not been completed owing to certain weaknesses which have developed. Some preliminary test runs have been made showing that the power output is nearly the amount expected, and one of these engines has been installed in an Aldershot bombing plane. It is impossible to predict the future for the "Cub" engine until after a number of trial flights and the completion of its endurance tests.

The only large engine designed and constructed in this country during the war was the Duesenberg Model H, a sixteen-cylinder Vee type built with either direct or geared down propeller drive. The output expected was 800 hp. at 1,800 r.p.m., the engine having a piston displacement of 3,393 cu. in. The direct drive engine weighed 1,560 lb., which is rather low considering the power expected. However, no full power readings were ever made, as the engine tested after the Armistice gave considerable trouble and finally failed before the runs were completed. This engine was entirely unsuited for airplane installation on account of its length; nevertheless, it might have been developed for airships if the preliminary tests had been more successful.

The U. S. Air Service was therefore without any reliable engine of over 400 hp. at the end of the war. During the following year, designs were laid down for an eighteen-cylinder W type of 2,778 cu. in. piston displacement known as the model W1. This engine is composed of three rows of six cylinders each, with an included angle of forty degrees between each of the outer rows and vertical row in the center. Despite the fact that no engine of this type had ever been successfully developed, it was chosen by Army engineers because it embodied the particular inherent characteristics which were considered necessary for an engine of this class. This arrangement of cylinders probably gives as compact an engine

for the displacement as can be produced, besides having the features of perfect inertia balance, and good evenness of torque delivered to the propeller.

The first one of these engines was completed near the end of 1920. The rated horsepower was 700 at 1,700 r.p.m., and 750 at 1,800 r.p.m., but the first dynamometer tests showed a much greater output. The original engine, except for the occasional substitution of a few new parts, completed five fifty-hour endurance tests, besides other tests which probably made a total of about 300 hr. running. Never before has the first engine built from any design been known to have made such a record, nor has any engine of its class been known to complete tests of equal duration.

Durability and reliability are the two characteristics of prime importance in large engines, consequently our engineers sought these features, giving weight only secondary consideration. It was firmly believed that once a durable engine was developed, the process of reducing weight could be conducted gradually and thus in no way affect the main features of the design.

The weight of the Model W1A engine is 1,770 lb. and, when set to give normally 800 hp., represents 2.21 lb./hp. This figure is lower than any of the six more or less successful large engines described above with the exception of the Rolls-Royce "Condor." Modifications, which are being tested from time to time, indicate that the weight of this engine can be reduced to less than 1,500 lb. without the slightest sacrifice in life and reliability. The weight per horsepower would then be 1.87 lb., the lowest value ever obtained for an engine of over 500 hp., excluding of course flash readings taken on experimental engines and lower in fact than for the majority of smaller engines.

Flights have been made with the Model W1 engines in two types of airplanes. One is an armored ground attack airplane and the other is a day bomber. Both of these airplanes are new designs and consequently there has not been as many hours flown as there would have been ordinarily in a ship whose characteristics were better known. The reports of pilots who have flown these ships, however, are extremely favorable as regards engine operation.

The selection of the eighteen-cylinder W type engine as the best suited for outputs between 700 and 1,500 hp. has proven sound. The cylinder dimensions can be held within tried limits, the moving parts are in almost perfect balance, and the power delivery is practically uniform. The overall dimensions can be held within tried limits, the moving parts are in almost weight has already been shown to compare faborably with all other large types constructed to date. There are many problems connected with the design and development of the large engines, but our engineers have apparently been able to solve them. The U. S. Army Air Service now possesses one of the best bombing engines yet developed, and the experience which indicates that successful engines of 1,000 to 1,500 hp. can be built to weigh less than 1.5 lb. per hp.

Summary of Five Years' Air Mail Operations

Statement of performance from May 15, 1918, the date of establishment, to Dec. 31, 1923

MONTH	*Trips possible (scheduled)*	*Trips defaulted*	*Trips attempted*	*Trips uncompleted*	*Weather encountered* — *Trips in fog, etc.*	*Trips clear*	*Mileage possible (scheduled)*	*Miles traveled with mail*	*Miles ferry and test*	*Total miles traveled*	*Per cent of performance*	*Mail carried (number of letters)*	*Cost of service*	*Forced landings Due to— Mechanical causes*	*Other causes*
1918.....	793	32	761	...	258	535	87,042	81,898	20,650	102,548	94.09	4,720,240	$76,616.59	22	24
1919.....	1,761	87	1,674	...	603	1,060	430,275	393,066	68,229	461,295	91.35	17,669,700	320,647.70	69	97
1920.....	4,941	1,009	3,932	328	1,614	2,318	1,107,266	864,128	184,316	1,048,444	78.04	30,975,500	979,997.25	445	385
1921.....	9,202	512	8,690	400	2,963	5,727	1,846,072	1,713,934	198,799	1,912,733	92.84	46,620,280	1,499,584.10	632	841
1922.....	8,291	292	7,999	145	2,935	5,064	1,643,657	1,570,089	186,714	1,756,803	95.52	60,487,880	1,417,374.82	206	367
1923.....	8,072	225	7,847	111	3,745	4.102	1,603,110	1,545,280	325,142	1,870,422	96.39	65,295,920	1,910,422.54	175	327
	33,060	2,157	30,903	984	12,118	18,806	6,717,422	6,168,395	983,850	7,152,245	91.83	225,769,520	6,204,643.00	1,549	2,041

New York-Washington route inaugurated May 15, 1918 (discontinued May 31, 1921). Chicago-St. Louis route inaugurated August 16, 1920 (discontinued June 30, 1921). Twin Cities (Minneapolis and St. Paul)-Chicago route inaugurated December 1, 1920 (discontinued June 30, 1921). First leg of the New York-San Francisco route inaugurated between Cleveland and Chicago May 15, 1919; second leg, New York to Cleveland, inaugurated July 1, 1919; third leg, Chicago to Omaha, inaugurated May 15, 1920; the last leg Omaha to San Francisco inaugurated Sept. 8, 1920. The Transcontinental is the only route operated by the Post Office Department. (Contract routes are in force between Seattle, Wash. and Victoria, B. C.; and between New Orleans and Pilottown, La. These contract routes were established for the purpose of advancing the delivery of foreign mails. At present the Post Office Department has no authority to establish routes for the carrying of mail on domestic or inland routes.

Navy Selects New Training Airplane

Baltimore *Sun*, 3 March, 1924.—Washington, March 2.—A new training plane for student naval aviators has been selected by the navy to take the place of three previous training types. The new plane, the *Boeing* training plane, is equipped with interchangeable landing gear, so that it can be used either as a land plane or as a seaplane. The plane is also suited for use as a gunnery training plane.

The three planes that it will supersede—the *N-9* seaplane, the *HS-2 L* seaplane and the *JN-4* land plane—developed in the early years of the war, are obsolete.

The *Boeing* training plane was selected by a special board of officers at the naval air station at Pensacola, Fla., and emerged victorious from a series of tests made with three other types. During these tests the planes were flown by the instructors of the aviation training classes at the station and instruction was actually carried on in all types.

Following training in the *Boeing* plane the student aviators will be qualified to continue their training in service types of planes, such as are used from day to day throughout the naval service.

"The *Boeing* plane, besides its interchangeable landing gear, has a number of other features," a Navy Department announcement says.

"The construction of the framework of the fuselage, or body, of the plane is of tubular steel. The upper and lower wings, together with the right and left ailerons and elevators, or control surfaces on the wings, are interchangeable, thus making the question of spare parts very much simpler. The plane has two cockpits, one for the instructor and one for the student, and the visibility from both of these cockpits is excellent.

"The plane lands at a very moderate, and therefore safe, speed of about thirty-five miles per hour. The plane is also able to take to the air very readily and when in the air handles very well. The landing gear for seaplane work is of the single pontoon type. The plane is powered with a Wright-Lawrence J-3 engine of 200 horsepower."

A contract for the construction of fifty of these planes has been made with the Boeing Airplane Company, of Seattle, Wash.

Army Planes Start Round the Globe

Philadelphia *Public Ledger*, 17 March, 1924.—If these were normal times and ordinary days in these United States, every American eye would be fixed on the four airplanes that will leave Los Angeles today. These, however, are not ordinary times.

Our tax troubles, our oil scandals, our Dohenys, our Sinclairs and Falls and the rumblings of the campaign of 1924 leave little room in the national mind for aviation. Our priceless Roxie Stinsons from Main Street, our precious Gaston B. Means, our Harry M. Daughertys and all of that queer procession now crossing the Washington stage have conspired to make us forget the beginning of what may be an epoch in air navigation.

Forgotten or not, ignored or not, something picturesque and romantic begins at Los Angeles today. Four American Army planes, manned by eight American Army fliers, will take wing for Seattle. From Seattle on April 1, north by west they swing up across the glaciers, around the snow peaks and over the everlasting ice fields to the smoky Aleuts. With the cold seas of Bering to their right, they will notch the ice-covered noses of their planes on Akutan, Naza, Chicagoff and others of the barren and bleak islands in the fog-covered, God-forsaken world of waters that separate America and Asia.

The lucky and living men of these eight fliers hope to climb down out of their worn planes in Washington, District of Columbia, on August 10. That is to be the terminus of the round-the-world flight. They may, of

course, fail. The Britisher, Major Blake, failed; but his was more of a lone-handed effort. The American Army has planned this attempt with exceeding great care. Supplies, oil, equipment—everything and every need that may be foreseen have been anticipated. As nearly as advance calculations can make it, this flight is organized and insured. For two years the plans have been under way.

There will be plenty of chances for failure. This flight is no summer aviation picnic. Open water, deserts, mountains, winds, lack of landing fields and uncharted air currents are only a few of the dangers that wait along the 26,000-mile course that has been marked out around the globe.

There is the long "hop" of 860 miles from the dark Aleuts down into Japanese waters, with never a mile of it ever flown over by airmen. It is "unknown air," and American watchers will breathe easier when the planes come to the Kuriles and the main Japanese islands. Once there, the course over Eurasia will be over lands known to aviators. It will go round Southern Asia via Nagasaki, Shanghai, Saigon, Calcutta, Delhi, Bagdad, Aleppo and to Bucharest, to mention a very few of the scheduled stopping places. Crossing Europe, the star-marked planes will come home via the Faroes, Iceland, Greenland and Labrador.

All this effort will be expensive, risky and downright dangerous. Nevertheless, it is worth the hazard and worth all it may cost. It will gain for the army airmen a vast experience in long-distance flying and the problems of supplying such flying. The feasibility or not of round-the-world commercial airways will be shown. Nor will it be a little thing for the American Army Air Service to bring to America the honor of the first flight around the word.

This country is the birthplace of practical flying. In 1919 the navy seaplanes led the way across the Atlantic. Since then we have been dropping back in the world air race. If we can put this six months' flight girdle around the globe, our fading laurels will be freshened. The time is ripe for the attempt. If we don't make it, the British will. If they don't the ambitious French or Italians or even that infant air power, Portugal, may shame the land of the Wrights and Curtiss.

British Start Round World Flight Tuesday

Boston *Transcript,* 19 March, 1924.—London, March 10.—The latest British attempt at round-the-world flight will be started next Tuesday, when three aviators, headed by Squadron Commander A. Stuart MacLaren, plan to hop off from Calshot, at the entrance to Southampton Water, making their first stop at Lyons, France.

Thence they will fly by stages to Brindisi, Italy; Athens, Cairo, Bagdad, Basra, Karachi, Calcutta, Rangoon, Hong Kong, Tokio, across the Pacific by way of the Aleutian Islands, to Vancouver, Toronto and Newfoundland. According to the present plan the homeward hop over the Atlantic will be by way of the Azores and Lisbon.

Commercial Aviation Development

By Lieutenant C. C. Champion, U. S. N., *The Rotary Wheel-Barrow,* Santa Ana, Cal.—I have decided to touch briefly on a phase of aviation which must be of interest to you all as well as to the aviators present. If it is not of immediate interest it is sure to be in the not far distant future. I wish to contrast the present day development of commercial aviation abroad and in our own country and to give you an aviator's ideas as to the underlying cause.

With aviation still in its infancy, it has been estimated that it is now about ten per cent developed; it is natural that only such agencies as national governments can afford the great expenses of general experimen-

tation and development. Much of the actual work is done by private concerns but in the end the bills are passed on to the ultimate consumers, the Military-Naval establishments.

It follows that military planes must lead the way for commercial exploitation by first demonstrating what can be done and the probable costs of doing it. We have innumerable examples of accomplishments which are now serving and which have served as a stimulus for commercial aerial transport. The Navy was first successful in sending a plane across the Atlantic. The Army *T-2* flew from New York to San Diego without landing. A British military plane successfully flew from England to Australia. For reliability we have such records as those of the United States Air Mail, which in one year flew 19,000 hours and covered over 2,000,000 miles without a single fatality and of the London-Paris service which carried 24,000 passengers without fatality. At the same time larger and larger planes were being built, planes commercially profitable. The British now have military transport planes which carry twenty-five troops, completely equipped, exclusive of the crew.

In Europe airplanes are used very extensively for commercial transportation. The London-Paris service has long been an established institution, several companies, both British and French, operating on daily schedules. The service is such that it attracts not only business men and people traveling by air solely for the novelty but women going back and forth by air for its speed and convenience on shopping tours. London has now half a dozen or more lines to the larger cities of the continent. Paris is the center of a veritable spider-web arrangement of lines which extend as far as Poland on the one side, to Spain on the other, with many shorter and branch lines. Germany has a large and growing aerial transportation mostly within Germany and into Switzerland on account of political reasons. A large commercial company is now being organized in Sweden. The De Haviland company operates a taxi service in England carrying fares anywhere anytime at a cost quite comparable to those of the railroads. By this time you are no doubt wondering where the passengers come from and why so many people are willing to risk their necks in countries in which, compared to our own, the people live in leisurely fashion. The answer is that they do not risk their necks as much in travel by air as they do in travel by the more dangerous railroad and ship. You doubt that assertion. In proof I have to submit that Lloyds, the greatest and certainly the most diversified insurance company in existence today, insures travel by air at a smaller rate than any other form of travel. And Lloyds is still paying dividends.

In the United States, the producer of the first heavier-than-air machine to make a successful flight, there is at present but one commercial company of note, the Aero-Marine Company, which operates seaplanes around New York, from New York to the Florida resorts and from Florida to Havana. Also a line from Cleveland to Detroit. Certain other companies operate a few planes for short trips and sight-seeing tours but I know of none of them that maintains any sort of schedule or that is equipped for long distance service.

We have there an apparently unnatural condition. On the one hand the countries of Europe, large and small, utilizing the airplane to its fullest extent—I did not name nearly all of them as complete data is not at hand, but I know that airplane manufacture has developed into a large and flourishing industry in Belgium and Holland, and that they operate commercial lines—and on the other hand the busiest, most resourceful and richest nation on Earth sitting idly by and tinkering with airplanes like some mildly interesting though dangerous toy, to be handled only by foolhardy exhibition fliers in search of a precarious livelihood. The reason for such conditions is quite plain. Abroad we find a thorough and exact-

ing system for licensing of pilots and equally important, for the certification and periodic inspection of planes. This is a federal function and the standards are set high. In this country there is no regulation of any kind, no legislation which authorizes it and no bureau or department charged with such functions. What is the result—abroad, progress and the widespread use of a most useful invention; at home, the widespread and needless destruction of human life and the poisoning of the public mind against a great human agency, one which is coming fast despite all obstacles. It is a matter of unbounded satisfaction to aviation circles to record here that only two weeks ago a bill by Senator Wadsworth of New York passed the Senate, creating a Bureau of Civil Aeronautics in the Department of Commerce. The details are not available, but the purposes are generally to foster civil aeronautics, inspect and certify aircraft, establish air traffic rules, establish air routes and encourage the building of landing fields. Although this legislation is sadly belated it is a big step in the right direction and it is to be hoped that it is the forerunner of a national policy of careful regulation and well directed encouragement of civil flying activities.

In passing I want to point out another feature of legislation in regard to aircraft. In this also we are conspicuous in our lack of legislation. While foreign governments are careful in safeguarding their civil aeronautics and thus making the public mind receptive to its advantages they go further than that. They subsidize large commercial companies. The subsidies provided are limited and due to the large and ever increasing volume of business the cost to the government is very surprisingly small. These small expenditures return enormous advantages, which would, under any other system, cost many times the amount paid out in subsidies and the results would not be comparable to those now obtained and would be far less satisfactory. The three leading commercial air companies in England have recently amalgamated and the government has granted them a subsidy totaling 1,000,000 pounds extending over a period of ten years. Considering England's proposed building program for the next five years, the sum appropriated to keep those three huge companies operating will be approximately one-half of one per cent of the money spent on military aircraft. The Duke of Sutherland, British Under-secretary of State for Air, arrived in their country in December to study our aeronautical developments. He is quoted as speaking of commercial aviation as follows: Said he: "England looks upon flying as an economic contribution as essential to commerce as shipping. Aviation should not be regarded as a menace, to be curbed. Aviation ended England's insularity. England is now as much a part of continental Europe as France or Germany. England's effort is to develop commercial flying, and at the same time provide for its air defenses in proportion to the size and importance of the British Empire. The only thought of competition in the air which England entertains is commercial competition.

"With regard to civil aviation, I believe we are ahead of America; partly, no doubt, on account of the subsidies the British government pays to operating firms. Rightly or wrongly, we believe in this policy for the purpose of fostering the growth of civil aviation at the start." By encouraging commercial aviation, the government insures a large and steady demand for planes. The airplane manufacturers are therefore on a stable basis and not altogether dependent upon government contracts. Many large factories with their highly skilled labor are in constant operation, a nucleus for immediate war-time expansion. In the same manner a large number of pilots, mechanics and artisans are at hand as a reserve against national emergency, to say nothing of the number of planes which could readily be converted to military uses. In this country practically every new plane built is on government contract. Some few are for the Aero-Marine Company and a very few harmless playthings for men of large means

and Long Island and in the big cities. When you realize that the tiny planes we came in cost $16,000 each and one crash costs one plane, two facts become apparent—why civil aeronautics is dependent upon obsolete and worn-out military material and secondly the effect on our industry of having just one customer.

So much for aerial transportation in a commercialized form. There is another branch of aviation, just recently developed which is worth mentioning, the light aeroplane. In this country they are practically unknown. They are the outcome of the motorless glider and are the forerunner of a type destined to give to aviation what the pleasure car is to automobiles. Light airplanes have been developed extensively abroad, for experimental purposes and sport. These machines are simply very light planes with large wings and small engines. Motorcycle engines have been used extensively in this work. The amount of study and money expended on what now appears a toy is surprising, and indicates that designers and manufacturers expect a great future for an inexpensive type of plane which can be operated cheaply from a very small airdrome. A light plane with motorcycle engine recently attained an altitude of over 14,000 feet. Another flew from London to Brussels in four hours five minutes, the cost of gas and oil being about $1.60, a very small part of the time and cost required by rail and boat. This machine was powered with a six horsepower engine and cost less than $1,000.00. In spite of the advertising slogan of a well-known automobile tire manufacturer, I contend that "most miles per dollar" is to be found in the air and not on the relatively congested, rough and dangerous highways of the land.

We find many privately owned airplanes in this country, hundreds and thousands of them. And we see in the papers every day or so where many of them with their pilots and passengers have made their last flights. Some of these planes are owned by men or companies who know how to fly them and, equally important, know how and have the means to keep them fit to fly. Generally the two necessary attributes go together—they were acquired at the same time. I feel perfectly safe in saying that the large majority do not fall into that class. Far more often we find machines in indescribable conditions of neglect and disrepair. Many are long past their usefulness, their framing and fabric utterly rotten, their wires and fittings covered with rust, and their engines in keeping with the rest. Watch them in the air and it is apparent that their pilots either never knew how to fly or have forgotten how. If they knew more they would not be flying those planes. Yet there is no law in the land to prevent them from such folly. It's the old story of ignorance is bliss, but in this case sooner or later bliss ends abruptly, to the discomfiture not only of the pilot but often of the innocent bystanders.

Think of what it will mean to the country when we can stop that sort of business. It was necessary to regulate the indiscriminate use of radio transmitters. It was done, and the order which came out of chaos was a boon to everyone who used radio, and, passed along, to the manufacturers of radio equipment.

When order is restored out of the chaos which now exists in the flying game the needless slaughter of the innocents will cease, public confidence in aerial transportation will return, everything connected with aeronautics will flourish and Mr. Ford will probably have to change his design a little to meet the new demand.

ORDNANCE

New U. S. Anti-Aircraft Artillery: Italy's Super-Cruisers

By Hector C. Bywater, *Naval and Military Record*, 20 February, 1924.—It is disclosed in the annual report of Major-General Coe, commanding the United States Coast Artillery, that two 16-in. guns have recently been

mounted for the protection of New York harbor, and four 16-in. howitzers for defending the entrance to Chesapeake Bay. Shortage of funds has delayed the provision of complete fire-control installations for these new weapons, and a simple system of control has therefore been adopted for the time being. The report gives interesting particulars of new types of A.A. artillery which have been designed for the U. S. coast artillery service. The first is a 50-cal. machine-gun with a horizontal range of 27,000 feet and a vertical range of 9,000 to 12,000 feet, capable of firing 800 shots a minute. Using tracer ammunition, the fire of this gun can be controlled by night up to 7,500 feet and by day up to 6,000 feet. The second weapon is a 37-mm. machine-gun firing H.E. shell with fuses so delicately adjusted that contact with balloon fabric is sufficient to cause a burst, though the shells are quite safe to handle before being fired. This gun will discharge from 100 to 120 rounds a minute; its vertical range is 14,000 feet, and with tracer ammunition its fire can be controlled with accuracy up to 10,000 feet. It is proposed to instal these weapons in batteries of four, with single telescopic sight control, each battery to be trained and fired by a single gunner. The third experimental gun is a 3-in. 15-pdr. Q.F., with a range of 21,000 feet, firing fifteen rounds a minute. The shells of this gun carry a very heavy burster. The fourth gun is a new 4.7-in. model, firing 45-lb. shell to an effective altitude of about 30,000 feet. Its power-loading gear and automatic breech block enable a very high rate of fire to be maintained.

Admiral Thaon di Revel, the Italian Minister of Marine, stated recently that the new class of cruisers, of which the first two are to be laid down this year, will be most formidable ships of their type which any country has built up to now. They have been designed for a standard displacement of 10,000 tons, with machinery of unexampled power, and a main battery of ten 8-in. guns. From additional details published in the Italian journals it appears that a speed of 34½ knots is anticipated. The ships will be built on a new system of construction, which combines strength with lightness. Having been designed to fight at long range, their armor will be just thick enough to resist the attack of high-explosive shell from guns ordinarily mounted in cruising ships. They will carry ten 8-in. 50-cal. guns of a new model, of great range and penetrative power. The forward turret will contain three guns, and the second turret, with two guns, will fire over it, the remaining five guns being similarly disposed at the stern. The ship can thus train five 8-in. guns ahead or astern, and ten on either beam. A strong battery of A.A. guns will be mounted amidships, and the torpedo armament will not be neglected.

Provision is made for transporting two scouting aeroplanes, which can be launched while the ship is traveling at full speed. The names of Trieste and Amalfi may be given to the first two cruisers. Their broadside fire of 2,700 lb. is extraordinarily heavy in proportion to their displacement. The British ships of the *Raleigh* class, of 9,750 tons, which are the most powerful light cruisers at present in service, can train only six 7.5-in. guns on the beam, equivalent to a discharge of 1,200 lb. These Italian vessels, in fact, will have a heavier broadside fire than that of the largest armoured cruisers built previous to the war. The *Defense* could train four 9.2-in. and five 7.5-in. on the beam, and the German *Blücher* eight 8.2-in. and four 5.9-in. guns, representing discharges of 2,520 lb. and 2,600 lb. respectively, though the first was a ship of nearly 15,000 and the second of 15,800 tons displacement. Nothing less than a capital ship could try conclusions with the new Italian cruisers.

NAVIGATION AND RADIO

A Directive Type of Radio Beacon and Its Application To Navigation

By F. H. Engel and F. W. Dunmore, *Bureau of Standards.*—This paper deals with a method of guiding a ship or airplane by means of radio signals sent from a particular type of directive radio beacon. The principle of operation of this beacon is described. Briefly it consists of two transmitting coil antennas arranged at an angle of about 135° with respect to each other. Signals from a transmitting set are first impressed on one coil antenna and then on the other, the change being made once every second. Waves are thus intermittently propagated directively from each coil, the intensity of the emitted wave with respect to the plane of each coil varying in accordance with a figure-of-eight. An airplane or ship equipped with an ordinary receiving set if located on any bisector of the angle formed between the two coils will receive signals of equal intensity from both of them. Thus a definite course may be held in thick or foggy weather simply by navigating so that the signal strength from the two coils remains equal.

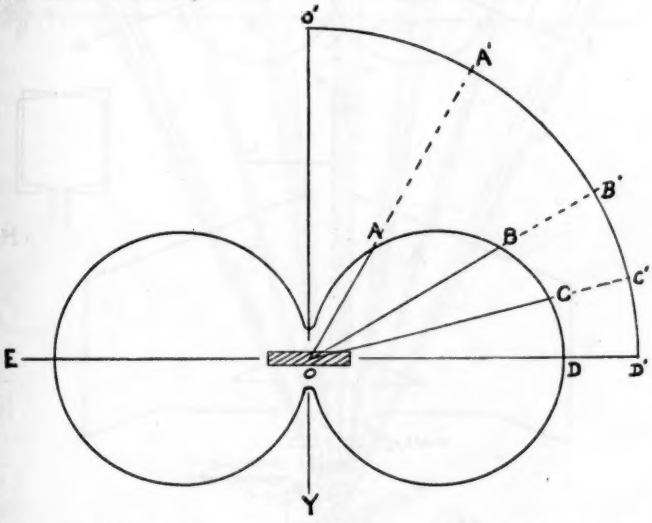


FIG. 1.—DIRECTIVE TRANSMISSION CHARACTERISTIC OF COIL ANTENNA

Results of actual tests both on shipboard and on an airplane are given. In one test the double-coil directive-radio beacon was located at the Bureau of Standards. Observations were made on the U. S. Lighthouse tender *Maple* along a course which extended east and west at a point on the Potomac River about 56.4 km. (thirty-five miles) south of Washington. At this point there was found to be a zone of equisignals about a mile wide, in which sector no noticeable difference in the intensity of the signals received from two coils could be noticed. Outside this sector, however, the two signals were noticeably unequal in intensity.

Interesting results were obtained as a result of tests made on an airplane. It was found that the directive receiving characteristic of an ordinary trailing wire antenna caused an apparent shift of the equisignal

zone in the direction of flight of the airplane when the airplane was flying at right angles to the zone of equal signals. The use of a heavy antenna weight (which caused the antenna to hang more nearly vertical) eliminated this zone shifting effect.

The point is made that while this aid to navigation may be effective only over definite routes or courses it has the advantage over other

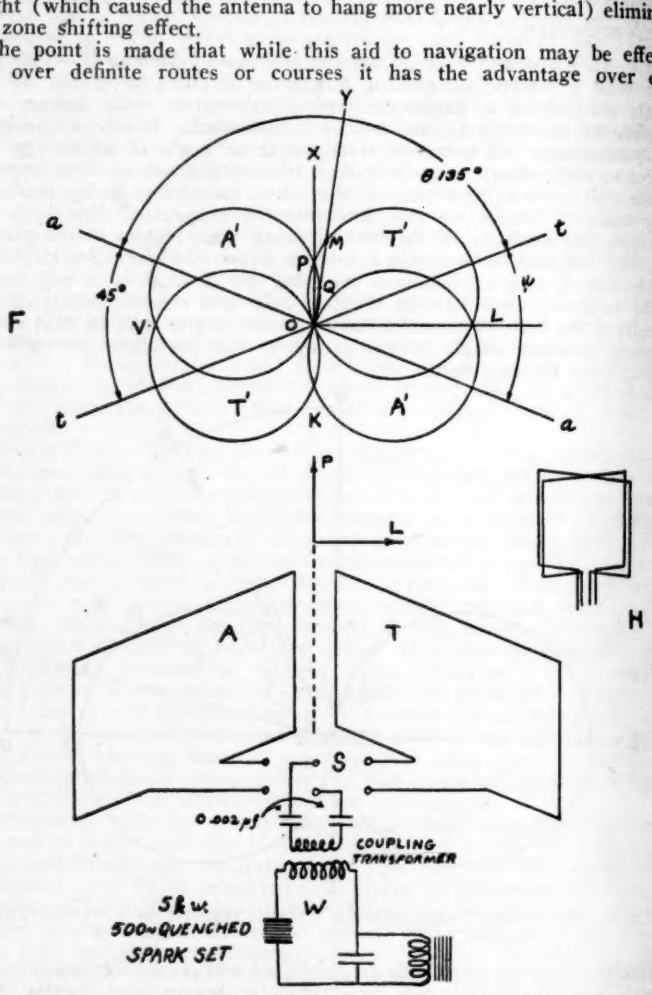


FIG. 2.—PRINCIPLE OF OPERATION OF EQUISIGNAL DOUBLE-COIL ANTENNA TRANSMITTING APPARATUS

methods of direction finding in that no special receiving apparatus is necessary, and that it gives an immediate indication of any alteration in the course caused by drift from wind or tide.

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The method makes use of the directive transmitting properties of a coil antenna. A coil antenna is directional when used as a transmitting antenna, much as it is when used as a receiving antenna; that is, the

familiar figure-of-eight directive characteristic is obtained. For example, suppose a coil antenna is to be located at *O*, Figure 1, with its plane along the line *ED*. Maximum transmission from it will take place along the line *ED* and minimum transmission along the line *O'Y*. A receiving set moved through the arc *D'C'B'A'O'* would receive signals whose strength would be proportional to the distances *OD*, *OC*, *OB*, and *OA*, respectively. At the point *O'*, however, no signal will be received.

In the system being described two transmitting coil antennas are arranged at an angle of 135° with respect to each other, such as shown at

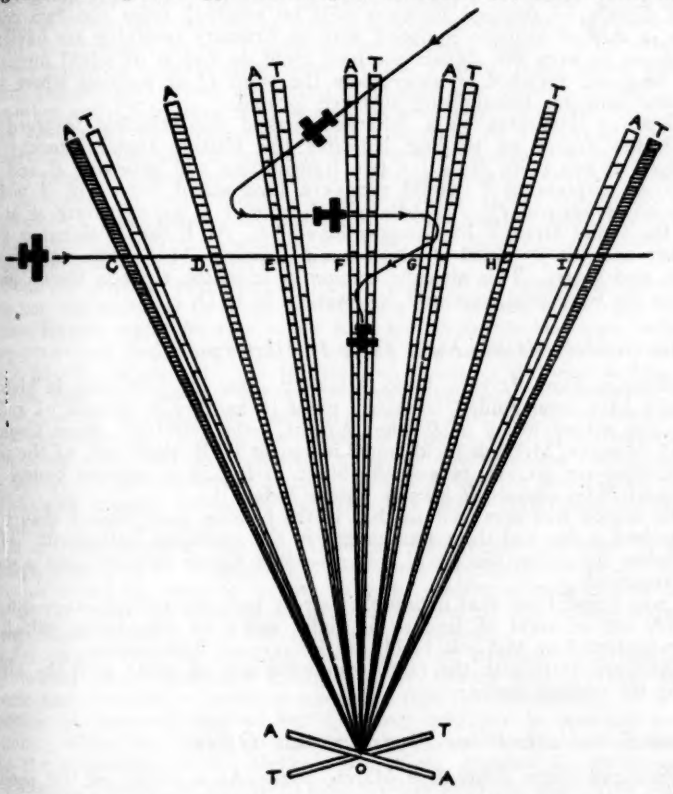

FIG. 3.—AIRPLANE GUIDED BY EQUISIGNAL ZONE

Amount of cross section at any point shows the relative intensity of the signals received at that point from the two coils "*A*" and "*T*."

A and *T* in Figure 2. These coil antennas are arranged to be connected alternately to a radio transmitting set *W* by means of a special switch *S* which is thrown rapidly from one closed position to the other. Waves are thus intermittently propagated directively from each coil, the intensity with respect to the plane of the coil varying in accordance with a figure-of-eight as shown by the circles *A'*, *A'*, and *T'*, *T'*. The coil aerials are represented by the lines *aa* and *tt*. Thus, a receiving set located anywhere along the line *OY* would receive a signal proportional

to the length of the line *OM* from coil *tt* and another a few seconds later of intensity proportional to the length of the line *OQ* from coil *aa*. It is apparent, therefore, that along the line *OY* the signals from coil *tt* are more than twice as strong as those from coil *aa*. A receiving set located along the line *OX* will receive signals of equal intensity from both coils, since (as it is the bisector of the angle formed by the two coils) the distance *OP* is the same for both coils. A similar condition exists along the lines *OV*, *OK*, and *OL*. It is apparent, therefore, that if the receiving set is moved to any other points than those along these lines signals of unequal intensity will be received from the two coils. Thus, a ship or airplane equipped with an ordinary receiving set navigating so as to keep the signals received from *aa* and *tt* of equal intensity will be going forward or away from the point *O* or position where the two-coil antenna transmitting sets are located.

Figure 3 illustrates by a different method the principle involved in which the degree of shading indicates the relative signal intensity as received at any point from the two transmitting coil antennas *A* and *T*. Thus, an airplane at *C* would receive a loud signal from coil *A* and a weak one from coil *T*. At *D* the signal from *A* is not as strong as at *C*, and the signal from *T* has become inaudible. At *E* the *A* signal is still weaker and the *T* signal is heard again faintly. At *F* both signals are equal, and so on. This airplane coming in from the right is shown picking up the equisignal zone and following it in to *O*.

Radio Guides Airship First Time In History

Baltimore *Sun*.—Dayton, Ohio, March 7.—For the first time in history airships have been guided from one point to another by means of radio. This was accomplished at Wilbur Wright Field yesterday, when Captain W. H. Murphy, McCook Field, and Lieutenant R. E. Robillard, of the post lighter-than-air section, piloted the blimp *O-B-1* in a straight course by means of radio signals, it became known today.

The device was arranged so that if the balloon went higher than predetermined a dot and dash was caught in the receiving instrument. If it fell below its course the signal was reversed. Going straight, just a dash was recorded.

It was pointed out that in times of stress balloons and airplanes can fly entirely out of sight of land or at night, and with this device, which is being perfected at McCook Field, can be sure of their course.

Additional tests with the radio equipment will be made with the blimp during the coming weeks.

Admiral Niblack Wins Hydrographic Office

Army and Navy Journal, 8 March, 1924.—As a result of the second ballot of the International Hydrographic Bureau, held in Monaco on March 3, the American candidate, Rear Admiral A. P. Niblack, U. S. N., retired, was elected to fill the vacancy in the Directing Committee. There was no election on the first ballot held some time ago, as no one of the four candidates received sixty-one votes or an actual majority of the 120.

Under the regulations governing the election of members to this committee, a plurality will elect on the second ballot. The voting was as follows: Niblack, 53; Reinius (Sweden), 37; Bellot de l'Isle (French), 29; Scott-Ransan (Norway), 1. Rear Admiral Niblack sailed from New York on March 4, direct for Monaco on the S. S. *Lapland*.

MISCELLANEOUS

Scant Hope of Fixing New Limits On Arms

Geneva Conference Will Probably Fail, France Holds Fast to Submarines and Airplanes, and British Navy League Demands Cruisers.—By Hector C. Bywater, Baltimore *Sun*, 29 February, 1924.—London, February 7.—A subcommittee of the League of Nations Commission for the study of military, naval and air questions has been sitting at Geneva in order to prepare the agenda of an International Conference which is to be held at Rome on February 14, with the object of extending the principles of the Washington Naval Treaty to non-signatory states. This subcommittee consists of experts from Great Britain, France, Italy, Japan, Russia, Spain, Sweden and Brazil, and seven other maritime powers, including the Argentine and Chile have been invited to send representatives.

In so far as the displacement and armament of individual ships is concerned, no difficulty is foreseen in securing the adhesion of all naval powers to the Washington restrictions. Theoretically, a government which had not signed the treaty might build battleships of 45,000 tons, armed with eighteen-inch guns, thereby rendering obsolete the smaller and older vessels of the signatory navies. Actually, however, this danger is so remote that special safeguards seem rather superfluous.

With the possible exception of Russia, none of the non-signatory countries has the technical facilities for building and arming such huge battleships. Russia might be able to do it if her shipyards and gun factories were renovated and supervised by German engineers, but there is no evidence of this at present. As for the five signatory powers, Article XV forbids them to construct for a non-contracting navy any vessel of war whose tonnage or armament exceeds the limits specified in the treaty.

If, therefore, the coming conference at Geneva aims at no more than persuading the minor naval powers to accept the technical limitations of the treaty, its success seems assured; but if it has the wider purpose of establishing tonnage ratios for the respective fleets, formidable difficulties are likely to be met with.

An attempt made at the Pan-American Conference last year to fix a relative standard of strength for the three principal navies of South America ended in complete failure. Yet the conflict of policies and interests is far more pronounced as between certain of the minor states of Europe than between the Latin-American republics.

Is it conceivable, for instance, that a ratio of strength could be found that would prove mutually satisfactory to Greece and Turkey, or to Russia and Sweden? Greece is convinced that the maintenance of a fleet superior in force to that of her Ottoman neighbor is essential to her security; while the Turks, on their part, are by no means willing to concede the supremacy of the Hellenic flag in the Ægean. Up in the north of Europe, Sweden is watching with jealous eyes the efforts of Russia, not very serious as yet, to rebuild her shattered naval power, which in pre-war days was regarded by every Swede as a standing-menace to his country.

A conference to regulate the future size of all these second-class fleets would almost certainly prove abortive, and its failure might leave matters in a worse condition than they are at present.

A report has been published here to the effect that President Coolidge, notwithstanding the pressure brought to bear by pacifist elements in the United States, has no immediate intention of convening a second international conference for the purpose of imposing further restrictions on naval and air armaments.

A resolution inviting President Harding to take the initiative in this direction was attached to the Navy Appropriation Bill last year, but it

was not acted upon. No one can justly blame American statesmen for observing a cautious attitude toward this question. They realize, more clearly than their critics, not only the difficulties with which it is hedged about, but the positive dangers which might result from precipitate action.

World conditions have undergone a marked change during the past two years. When the Washington Conference assembled, in 1921, France and Britain, though already somewhat estranged by their political differences in Germany and the Near East, were still on fairly good terms, and neither saw any threat to itself in the other's armaments.

But a new phase in their relations began with the controversy which arose over the limitation of submarines. Public opinion in this country learned for the first time that France intended to embark on a large program of submarine construction. It heard, also, that French naval experts were strongly recommending the submarine as the one weapon that was capable of subverting British naval power. Since that time the French program has begun to take shape. Fifty-four submarines have been laid down or authorized in the last two years, and apparently more are to come.

This development in France is watched with suspicion, not unmingled with alarm. Its effect was seen in the decision of the late government—not yet confirmed by the Labor Cabinet—to build a considerable number of new warships.

British naval publicists insist on the necessity for providing many new destroyers, which are described as the natural antidote to the submarine. In short, the wheel has turned full circle, France now standing in the very position she occupied at the dawn of the century as Britain's chief naval competitor, before that rôle was temporarily assumed by Germany.

In the event of a new disarmament conference taking place, the submarine controversy would inevitably be revived in a more acrimonious form. Under no circumstances would Britain consent to further restrictions on naval shipbuilding unless Fance agreed to scrap half her submarine program, an idea which Mr. Poincaré, with the full approval of Chamber and Senate, has positively declined to entertain.

Evidently, therefore, nothing could prevent a complete deadlock, for the submarine is now more than ever the key factor in minor naval armaments. The heated, not to say angry, scenes which occurred at Washington in December, 1921, when the British and French delegates were arguing this question, would probably be repeated, with no other result than that of further embittering international relations.

If the purview of the conference were to include air armaments, the odds against a successful issue would become crushing. Thanks to the supineness of the Coalition Government after the war with regard to British air power, France has been left in unchallenged mastery of the skies. At a conservative estimate, her present air fleet outnumbers the British by seven to one. So long as such a disparity exists the people of this country will feel themselves perpetually under the shadow of a great peril, the consciousness of which must infallibly give a hostile turn to their thoughts of France.

Nothing would be better calculated to clear the political atmosphere in Europe than an agreement between these two countries on the basis of equality in air power, and, at first sight, nothing should be easier to arrange. France has no valid reason for laying claim to supremacy in the air. Her need for protection against overhead attack is no greater and no less than Britain's.

For defensive purposes an air fleet exactly equal in strength to that of a possible enemy would be just as efficacious as one that was three times as strong, for it is improbable that any country would send its aircraft to bomb the cities of an enemy who was in a position to return blow for blow.

"Frightfulness" of that sort only pays when the victim is incapable of retaliating in kind.

Thus, if France and Britain each had, say, a thousand war planes, one force would cancel out the other for every function save legitimate military operations in the recognized military zone. Neither side would then have to live under the nightmare of air raids "behind the lines," a euphemism adapted by the Germans to camouflage their real motive in bombing English homes.

But would France agree to surrender that air superiority which, as she thinks, gives such a powerful backing to her post-war diplomacy? We cannot expect French statesmen openly to avow their use of this tremendous air fleet as a trump card in the game of diplomacy, but we know they do use it in that very way. Anglo-French relations will continue to deteriorate unless an agreement is reached to maintain a common standard of air power.

Underneath all the antagonism that grew up between Germany and Britain and culminated in Armageddon lay the basic fact of German naval expansion. It would be a terrible misfortune for Europe if a similar rivalry in air armaments were to develop between this country and France. Any British Government, whatever its political complexion, would most gladly open negotiations with France for the regulation of these armaments.

If no such move has been made up to now, the fact is itself a sufficient indication that France has not responded to the overtures which are known to have come from this side from time to time, especially under the Baldwin administration. The frigid attitude of France toward every proposal likely to involve a renunciation of her air supremacy bodes ill for the success of any conference that might be called for the limitation of air fleets.

Finally, even an attempt to extend the provisions of the Washington Treaty to minor naval war craft might encounter opposition not only in France but in this country as well. Commenting on this subject in a recent manifesto, the British Navy League said:

"Nor would the representatives of the empire be justified in consenting to any plan for a reduction in other than capital ships which did not take into account the special geographic and economic conditions which constitute the essential difference between Great Britain and any other power."

In plain language, this asserts the British claim to a specially high ratio of tonnage in cruisers, owing to her peculiar dependence upon seaborne supplies. But, as the present writer has reason to know, this demand is not conceded by American naval authorities, who argue that the admission of any "special claims" to an excess of tonnage in any type of ship would at once vitiate the whole principle of limitation.

It looks, therefore, as if the chances of negotiating a new disarmament treaty are so small as to be negligible. This, no doubt, is why official circles in Washington are not encouraging the movement for a second conference. Very naturally, they do not wish to be associated with a plan which, if broached at the present juncture, would run a grave risk of ending in a fiasco.

Naval Reduction Parley Marked By Conflicts

Boston *Transcript*.—Rome, February 27.—Unanimity prevailed in the naval disarmament conference, according to an official communique summing up the meetings which have just been concluded here. At the same time an official statement issued by the Spanish representative, Captain Montagut, was considered to be rather contradictory of the claim to unanimity, as it made public the reasons Spain withdrew her official delegate from the conference. Dissensions are also known to exist on the claims of Russia and the South American countries.

The official communique referring to the proposals advanced, declared: "The report prepared by the committee was unanimously approved."

Captain Montagut's statement is as follows:

"The powers which met at Washington possessed excessive naval armaments and therefore agreed to limit them, which was mutually advantageous. The present conference considered the advisability of extending these limitations to other States.

"If these limitations are accepted by all, certain powers will be benefited because the provisions permit them to maintain an equilibrium in certain seas and regions with respect to other neighboring powers at present possessing more powerful naval armaments—for instance, Brazil and Chile as compared with Argentina; then Sweden as compared with Russia.

"Spain has no local problems, thanks to her privileged strategic position and also to the fact that she is surrounded by the three greatest European naval powers. All her maritime problems have a world character.

"On the other hand, Spain has not agreed in any way, materially or morally, to accept limitations, since the agreements of Washington are not based on the pact of the League of Nations. With this state of things it may be supposed that whatever reasonable limitations Spain offered to impose on herself would have been accepted gratefully. Spain not only made a reasonable offer, but is the only second-class naval power which declared herself disposed to limit its own naval armaments.

"Because Argentina, China and Turkey have not accepted any kind of limitation, Brazil, Chile, Greece and Sweden subordinate their offers of limitation to the explicit condition that Argentina, the Baltic Powers and Turkey should accept equal limitations.

"Brazil, Chile, Greece and Sweden remain free to construct ships without limit. Spain, on the other hand, not only fixed the limit of tonnage for her own construction—105,000 tons—but did not subordinate this to any conditions, and also declared that whatever resolutions were adopted by the present conference would not be considered by her as an obstacle, even if the plenipotentiaries fixed for political reasons even greater limitations.

"Notwithstanding this, Spain's offer received only four favorable votes. This fact acquires special weight when it is remembered that the balloting took place on two occasions, two days apart.

"A strange agreement was reached namely, the experts at the present conference were of the opinion that Spain now has 82,000 tons and should have 105,000, but, contrary to this, that Spain cannot construct either now or in the future the tonnage necessary to reach the last named figure. This explains Spain's attitude."

The official communique of the conference reads:

"The naval powers, whose delegates are meeting in Rome, all possess ships of the line according with the Washington definition, or form part of the naval sub-commission as council members. The sub-commission consequently has been obliged to study tonnage limitations for navies not participating in the Washington Conference. Each delegate indicated the figure he considered desirable from a strictly technical viewpoint in order to guarantee the security of his country, also giving his opinion regarding acceptation of a naval holiday.

"After a general exchange of views the commission constituted a special committee composed of delegates from Holland, for North Europe; Brazil, for South America; Spain for the Mediterranean, and France and Italy for the Washington signatories.

"The report prepared by the committee was unanimously approved, the study made by the commission was only preliminary, limiting itself to the technical aspect and leaving the political aspect, first, to the Council of the League of Nations, then to the decision of the first plenary conference of the plenipotentiaries, the date of which has not yet been fixed.

"This meeting will be limited to an examination of states possessing ships of the line, leaving aside for the moment states not possessing such. The council and governments will decide the development which will be given eventually to the work of this commission."

Addressing the supreme commission for the advancement of the Italian Navy, Premier Mussolini declared that his proposal "is to increase gradually but incessantly the efficiency of our navy." Continuing he said, "all that happens about us puts the navy in the front rank and I hope Italians are convinced of it. On land we are fortified enough for we have the impassable mountains. On the sea we cannot say the same thing and I declare to you who are the commanders of our armed sea forces I'll do all I can that the navy may have all it needs to be prepared for any emergency."

Spain Withdraws Envoy From League Naval Conference

Baltimore *Sun*, 24 February, 1924.—Rome, February 23.—Failure of agreement on tonnage caused a serious breach in the League of Nations naval disarmament conference, when Spain in open session this afternoon announced her intention of withdrawing from official participation. She will retain a delegate in the conference merely as an observer. The question of Spain's tonnage was discussed at length, but the Spanish delegate, Vice-admiral De Magaz, adhered to his government's figures, which the conference voted were too high. What the figures were could not be learned, owing to the air-tight secrecy which the conference maintains.

Chile, too, suffered a slight shock when she asked for an additional plane carrier. Captain Schroeder, the Chilean delegate, fought for one plane carrier more than one-third of the amount of capital ships, as provided, but his proposal was rejected.

"Welcome!" remarked one of the observers as Spain joined that circle. "There will be more observers than delegates soon."

The members of the naval conference spent the entire session discussing the articles which are to be submitted to the various governments. The final draft of the proposals has not been completed, and a committee was appointed to draw up the final documents for consideration at Monday's session.

The delegates decline to issue a communique, explaining that a statement will be forthcoming only when all the proposals are finally passed.

The meeting throughout has had a full share of disagreement. Some of the delegates declare that, while many things have been accomplished, the conflicting interests of the various nations render an accord difficult because each nation's attitude influences the others, particularly those along adjacent waters.

Zeebrugge To Be Great Naval Base

Philadelphia *Public Ledger*, 18 March, 1924.—Brussels, March 17.—The port of Zeebrugge, which was held by the Germans in the war, is to be transformed into the main naval base of Belgium.

According to the project of the Minister of National Defense, the entire Belgian Fleet will be transferred from its present base at Antwerp to Bruges and Zeebrugge. Belgium is reconstructing the basin fortifications at Zeebrugge, with new basins for submarines and improved drydocks.

The army also has orders to support the base with large concentrations, which will be placed in new barracks to be constructed at Maelepem, Zedelghem and Zeebrugge. The city of Jabbeke is planned as the munitions base, and the region will be protected by semi-permanent fortifications. At the near-by town of Ruysselede, a giant radio station will be installed.

The entire project is the result of a long discussion by the Belgian Government, and when completed will provide one of the strongest naval bases in northern Europe, and will be particularly formidable in view of the Belgian-French naval liaison.

Deadly War Gases Made By Powers; France Is Blamed

Baltimore *Sun*, 4 March, 1924.—Washington, March 3.—Deadly gases for war purposes are being made in volume by virtually every great power in the world, notwithstanding the agreement of the five leading nations at the Washington Conference to abolish the use of this weapon in future conflicts.

The responsibility for this situation, it was explained here today, rests almost wholly on France, which steadfastly has refused to ratify the treaty embodying the poison-gas proposition, even though the other four signatories to the treaty—Great Britain, the United States, Japan and Italy—ratified the measure months ago.

And what is true of poison gas likewise is true of the unrestricted use in the future of submarines. Control of submarine warfare is included in the same treaty which outlaws the use of gas and both projects have failed for the same reason.

Poison gas and submarine control remain, therefore, an important part of the "unfinished business" of the disarmament conference held in Washington two years ago. The parties to the five-power naval treaty providing for a ten-year naval holiday have ratified that measure, also the four-power Pacific treaty.

The nine-power Chinese treaties and the gas-submarine treaty, however, have been held up by France, and there is no assurance that they ever will be ratified. Officials of this Government continue to hope that France some day will take up the three remaining pacts and dispose of them one way or the other, but there is no positive promise that this will be done.

Because of the experiences of the World War the disarmament conference sought to influence the use of poison gases and to regulate the us of submarines, even though it was realized that no agreement made in peace time to that end absolutely would bind even the signatory powers in the event of war.

In an endeavor, however, to minimize the horrors of unrestricted use of gases and undersea craft, the conference adopted the following as Article 5 of a second five-power treaty.

"The use in war of asphyxiating, poison or other gases and all analogous liquids, materials or devices having been justly condemned by the general opinion of the civilized world and a prohibition of such use having been declared in treaties to which a majority of the civilized powers are parties—

"The signatory powers, to the end that this prohibition shall be accepted as a part of international law binding alike the conscience and policies of nations, declare their assent to such prohibition, agree to be bound thereby as between themselves and invite all other civilized nations to adhere thereto."

Because this treaty has not been ratified by France, although formally approved by the other parties to it, the powers continue to make poison gas and look forward to its use in the event of another war. This includes the United States, which still maintains the chemical warfare service of the army and finances the activities of that service, most of which are centered at Edgewood, Md.

It is pointed out in official quarters that the treaty does not prohibit the manufacture of such gases. All it does is to prohibit their use in war. It is admitted, though, that if the treaty had been ratified and were now in

full effect military gas enterprises would be abandoned by all those powers which were determined to carry out the spirit and letter of the agreement.

Neither poison gas nor submarines as weapons of warfare have been or can be dealt with by the commission of jurists created by the Washington Conference to consider regulations in the use of new means of war. That commission, which has held one session, is bound by the instructions of the conference to take up only those things which are not covered in a treaty. And, because poison gas and submarines are so covered, the commission has been restricted to consideration of aircraft and radio.

The League

Navies of the World.—Time, 3 March, 1924.—The Naval Conference of Experts at Rome concluded its deliberations (*Time*, February 18, 25). The purpose of the conference, which was held under the auspices of the League of Nations, was to consider the extension of the principles of the Washington Naval Treaty to outside powers, with a view to paving the way for a League of Nations Naval Conference to be held next year at Geneva.

RESULTS. Sixteen powers discussed the naval positions of Russia, Chile, Brazil, Argentina, Spain, Norway, Denmark, Sweden, Holland, Greece. The results showed that only four cases were left unsettled.

RUSSIA. The Russian delegate asked for a navy totaling 490,000 tons. These high figures were justified by the delegates, who said that the Soviet Government had four seats to protect. Four powers favored the Russian claim, seven opposed, four abstaining from voting.

CHILE. An annual amount of tonnage (80,000 tons) was agreed to and endorsed by the remaining fifteen powers.

BRAZIL. Same as Chile.

ARGENTINA. Expected to follow Chile and Brazil.

SPAIN. A tonnage of 105,000 tons was asked. The powers saw no reason why Spain should have a larger navy than the South American States. The Spanish delegate, for reasons of national dignity, withdrew from the conference.

NORWAY. An increase of 16,000 tons was allowed.

DENMARK. An increase of 18,000 was voted by the powers.

SWEDEN. The situation was unchanged, the delegate virtually agreeing to keep the navy to its present size.

HOLLAND. Only a slight increase was granted.

GREECE claimed an equal tonnage with Turkey, but as Turkey was not represented, an agreement was impossible. The powers were, however, agreeable to the arrangement.

CURRENT NAVAL AND PROFESSIONAL PAPERS

"Some Chemical Aspects of Welding."—By J. R. Booer, B.Sc., F. C. S. *Engineering*, 15 February, 1924.

"Nitrogen and the Next War."—By Major E. R. Mc. Macpherson, O. B. E., F. R. G. S., R. A. D. C. *Journal of the Royal United Service Institution*, February, 1924.

"Measuring Ocean Depths by Acoustical Methods."—Harvey C. Hayes, Ph.D., *Journal of Franklin Institute*, March, 1924.

"The Structure of the Atom."—W. F. G. Swain, D.Sc., *Journal of Franklin Institute*, March, 1924.

"The United States a Second Class Naval Power."—Archibald Douglas Turnbull, *The Current History Magazine*, March, 1924.

NOTES ON INTERNATIONAL AFFAIRS

FROM FEBRUARY 23 TO MARCH 23

PREPARED BY

PROFESSOR ALLAN WESTCOTT, U. S. NAVAL ACADEMY

REPARATIONS PROBLEMS

EXPERT REPORT READY APRIL 1.—It was stated in March that the report of the Dawes Commission on German Finances would be submitted to the Reparations Commission about April 1, and would consist of about 60,000 words aside from technical annexes. It was divided into six parts as follows: (1) plan for a bank of issue, with gold reserve: (2) plan for balancing the German budget for several years to come, including a moratorium on cash payments for two years; (3) plan for reorganizing German railways, including those of the Ruhr, and for using their income as part security for the proposed international loan; (4) plan for government monopoly of tobacco, alcohol, sugar, and matches; (5) plan for supervision of the levying of certain taxes and their expenditure, and for supervision of the bank of issue and railway organization; (6) organization of a system of mortgages on German industry as the basis of a loan to Germany.

It was reported that New York bankers in supplying credits to the Bank of France to strengthen the franc, had secured assurances that the French Government would adopt a favorable attitude regarding the report of the expert commission.

BRITISH AND FRENCH PREMIERS EXCHANGE NOTES. Upon his accession to office Premier MacDonald of Great Britain sent a note of extraordinary frankness to the French Premier and received similarly frank replies. This correspondence was made public on March 2. In his note of February 21 Premier MacDonald explained British dissatisfaction with the course of France on the general grounds, first, that France was suspected, by her action in the Ruhr and otherwise, of endeavoring to create a situation, contrary to the Versailles Treaty, which would enable her to secure gains not realized at Versailles; second, that the British were troubled by "the large military and aerial establishments maintained not only in eastern but also in western France," especially in view of French financial difficulties.

In his reply M. Poincaré denied any desire to annex a particle of German territory or to turn a single German into a French citizen, and explained that French "military and aerial establishments were exclusively designed to defend France against attempted German revenge."

Both premiers expressed the view that the question of inter-allied debts should be taken up in connection with the examination of the reports of

the expert finance commissions. Both also expressed a desire to strengthen the rôle of the League of Nations, and a desire to maintain the Anglo-French entente as essential to a satisfactory European settlement.

It was subsequently reported that negotiations were being continued, and that the two premiers would meet for personal conference after the submission of the Finance Commissions' reports.

GREAT BRITAIN

SINGAPORE DEVELOPMENTS ABANDONED.—London, March 22. (Associated Press.)—Washington dispatches telling that President Coolidge had been invited by the House of Representatives to convoke another disarmament conference were read today with much interest by Prime Minister MacDonald and his colleagues.

The British public, it is believed, would welcome heartily another such move from the American Government as that which in 1921 led to the scrapping of a large part of the navies of the world.

So earnest is the Prime Minister to substitute what he terms the brotherhood of man and the neighborliness of nations for armed force and destruction that he boldly determined to abandon the Singapore naval base, although he knew it would menace his government.

There has been some questioning as to just what Mr. MacDonald said in his House of Commons statement on Tuesday regarding the relation of the Singapore project to the Washington naval agreement.

Examination of the full extent of the statement, however, shows that the Premier clearly held that the development of the naval base would not be inconsistent with the Washington pact.

The government's abandonment of the scheme was not on the ground that it conflicted with the Washington Treaty, but because the government stood for international conciliation and hoped for conditions which would make comprehensive armament limitation possible.

EUROPEAN ELECTIONS

SOCIALISTS WEAKER IN GERMANY.—The German Reichstag elections to be held on May 4 were expected to result in a weakening of the moderate parties and strengthening of both the Communists and extreme Nationalists. There were about 34,000,000 votes in the 1920 elections, and roughly one-third of these belonged to the two Socialist parties, but there has been recently a movement away from the Socialists both toward the right and toward the left. It was expected that the Center or Catholic party, to which Chancellor Marx belongs, would retain approximately its sixty-eight members.

FRENCH ELECTIONS.—The French parliamentary elections were set for May 11. Although seven parties were in the field, the conflict was primarily between the Nationalist elements led by Premier Poincaré and the Liberal Block led by Briand, Herriot, and Painlevé, with prospects favorable for the Nationalists. The successful campaign during March to bring up the value of the franc greatly strengthened the Poincaré government.

FASCISTI PROSPECTS FAVORABLE.—In Italy it was reported that no less than 138 parties would figure in the April elections and that there were 1,354 candidates for the 535 seats in Parliament. According to the new

election law, two-thirds of the total number of seats go to the party gaining a plurality, but this party must obtain at least twenty-five per cent of the total vote cast.

On March 16 King Victor Emmanuel entered Fiume to take part in the formal ceremony of annexing the city to Italy. The title of Prince of Monteneroso (a peak on the frontier beyond Fiume) was conferred upon the poet, Gabriele d'Amunzio.

LEAGUE OF NATIONS

MEETING OF LEAGUE COUNCIL.—The session of the League of Nations Council held at Geneva during the second week of March, was occupied with a program of considerable international importance. The council approved the report of the committee of jurists on the questions raised by the Italian occupation of Corfu, an approval made easier by the fact that the report evaded a direct judgment upon the legitimacy of Italy's action. Poland and Germany agreed to accept league arbitration of the dispute over treatment of German nationalists in Poland. The Little Entente powers and Hungary also agreed upon a political protocol permitting the application to Hungary of the financial program already employed with success in the case of Austria. A program was agreed upon for the coming international conference on the opium traffic, and further steps were taken toward a conference on the extension of the principles of the Washington naval agreements to non-signatory states.

Mr. Norman H. Davis, chairman of the League Commission to settle the Memel dispute, on March 14 presented the commission's plan, which was at once accepted by England, France, Italy, Japan, and Lithuania. In brief the plan provided that the port of Memel should be managed by a commission of three, one to be appointed by Lithuania, one by the autonomous government of Memel and one by the league, and that Memel should be under the sovereignty of Lithuania. Poland protested the decision, but the matter was settled by the approval of the major powers.

A resolution was adopted to the effect that league control of Austria's finances could be withdrawn only after the balance of the budget and financial stability of the country were permanently secured. Only about half of the loan granted to Austria has been expended, and the Austrian Government wished to take over the remaining 200,000,000 crowns and end the supervision of Dr. Zimmermann, the league representative.

RUSSIA

RUSSIA'S NAVAL DEMANDS.—From New York *Times*, March 4.—Moscow, March 3.—Regarding what it terms the failure of the Rome Naval Conference, the official newspaper *Pravda* says Soviet Russia would be willing to limit her naval armament to 280,000 tons instead of building on a program of 490,000 tons, to which she would be entitled if the *status quo* at the moment of the opening of the Washington Conference were maintained, only if granted three important political guarantees.

The first of these would be the return to Russia of all vessels seized by Wrangel and Stark; second, the closing of the Baltic Sea to war ves-

sels of non-Baltic powers, and a redrafting of the Lausanne Treaty with the effect of closing the Dardanelles to all warships; third, demilitarization of the Korean Straits.

RUSSIAN AIMS IN BESSARABIA.—Ratification by France of the treaty with Rumania confirming the latter's control of Bessarabia aroused strong opposition in the Russian press against permanent surrender of this former Russian territory. The Moldavians, who are akin to Rumanians, constitute about forty-seven per cent of the population of Bessarabia; and Ukrainians, White Russians, and Jews about forty per cent. The peasants of all races, however, are in revolt against Rumanian landlords, and it was reported in the middle of March that the province had been for several weeks under martial law. The Soviet Government was reported to favor a "Moldavian Republic," which could be linked up with the Russian confederated union.

CHINA REJECTS SOVIET PROPOSALS.—On March 19 it was announced that negotiations between China and Russia, involving recognition of the Soviet Republic, had been at least temporarily broken off. The Chinese Government declared that the Russian notes, amounting practically to ultimatums, had been insulting, and, on the other hand, Russia voiced the suspicion that Chinese policy was directed by France, America, and Japan. The chief difficulty in the negotiations was over the status of Mongolia, Russia's assurances regarding the evacuation of which were not considered satisfactory.

TURKEY AND NEAR EAST

CALIPH DEPOSED.—On March 3 the Turkish National Assembly after considerable opposition from the conservatives passed bills deposing Caliph Abdul Medjid Effendi, abolishing the Ottoman Caliphate, and suppressing religious instruction in Turkey. On the following day the Caliph's palaces were confiscated and the Caliph with his wives and his son went into exile in Switzerland.

On March 7 King Hussein of the Hedjaz was proclaimed Caliph by the Moslems of Mesopotamia, Transjordania and the Hedjaz, and later announced that he would summon a world Moslem Conference to consider questions of universal moslem interest and establish an advisory council of the caliphate. It was reported that Hussein's succession would be viewed favorably by Great Britain, as acceptable to the 70,000,000 British moslem subjects in India and elsewhere. The Emir of Arabia, however, came out in opposition to Hussein, and further opposition was anticipated from Egypt and the 60,000,000 moslem subjects of France.

EGYPT'S FIRST PARLIAMENT.—On March 15 King Fuad of Egypt opened the first Egyptian parliament elected by popular suffrage. The king announced that the Egyptian government was ready to negotiate with Great Britain regarding certain unsettled questions, including the British military forces in Egypt and protection of foreign interests. He referred to the prospect of Egypt's admission to the League of Nations.

UNITED STATES AND LATIN AMERICA

HONDURAS CAPITAL TAKEN BY CARIAS FORCES.—After a fierce battle which began on March 14, Tegucigalpa, capital of Honduras, was occupied by the forces of Generals Carias and Ferrera. The forces of General Arias and Bueso, who had assumed dictatorial powers after the death of former President Guiterrez, were driven out of the city.

A force of 176 officers and men from the U.S.S. *Milwaukee* were sent from the Pacific port of Amalpa to the capital for the protection of foreign lives and property.

On March 22 President Coolidge issued a proclamation prohibiting the exportation of munitions of war to Honduras.

FINLAND ARRANGES PAYMENT OF DEBT TO UNITED STATES.—From the Baltimore *Sun*, 23 March.—Washington, March 22.—Final negotiations for the refunding of the $9,000,000 indebtedness of the government of Finland to the United States were concluded today when Minister A. L. Astrom, of Finland deposited with Secretary Mellon the bonds of his government and took up the demand notes held by the treasury.

This is the second foreign debt transaction to be refunded. The first was that of Great Britain involving $4,600,000,000, which was concluded last July. The Jugo-Slav mission is in the United States now to negotiate for a settlement of the debt contracted by the old kingdom of Serbia.

The Finnish debt is one of the smallest in the list of war loans to foreign governments. Latvia and Esthonia owe about $6,000,000 each. Hungary has borrowed $1,989,000 and Liberia borrowed $30,000. The debt of Finland is fourth from the bottom.

BOOK REVIEWS

THE LIFE OF SIR WILLIAM WHITE, K.C.B., F.R.S., LL.D., D.Sc. By Frederick Manning, with an introduction by The Right Honorable Lord George Hamilton. E. P. Dutton and Co., New York. $8.00.

Sir William White, for seventeen years the Director of Naval Construction and Assistant Controller of the British Admiralty, had obtained, before his retirement in 1920, not only an enviable success as an organizer, administrator, teacher, and author, but also an outstanding reputation in the field of naval architecture and a position of preëminence in the more specialized science of Warship Design.

It is on the latter score that his biography commends itself to the naval reader, for the author has allowed himself full scope in his treatment of the professional aspects of White's career. So much is this the case, that the book has become more a record of achievement than a portrayal of personality, although considerable matter of personal nature is included from which the reader tends to form his own opinion of the man.

From the naval viewpoint, the book assumes importance as a history of steel warship construction, tracing in detail, as it does, the development of the man-of-war from the wooden iron-clad of 1860 to the modern battleship.

As a shipwright's apprentice in an admiralty dockyard in 1859, White made his first acquaintance with the armored war vessel, over whose destinies he was later to wield such a powerful influence—for it was in that year that the first of the English iron-clads was laid down. From then until after his retirement, the life of Sir William White and the development of the warship were intimately connected.

In the first years he was in the fortunate position of learning as his seniors learned, for the whole science of ship construction was in the throes of transition, from wood to iron and from sail to steam. Surprisingly early in his career he began to influence the trend of battleship development, partly by his contributions to the Institute of Naval Architects, partly by his work at the admiralty, partly by his articles in current periodicals. In the admiralty, though rated only "third class draftsman," he became the direct assistant to the Director of Naval Construction, holding this position through a change in the occupancy of that office, and, under direction of his chiefs, aided in the design of the earlier armored vessels.

While at the admiralty he was assigned to lecture at the Royal School of Naval Architecture, whose first graduating class he had headed not many years before, and it was in the rôle of instructor to the young men sent there by the foreign governments that he first exerted an influence on the development of the navies of other nations.

White left the admiralty for a time and took service with Armstrong's, where he secured invaluable experience, not only in the design of war vessels for Argentina, China, Japan and other governments, but also in the organization and administration of shipyards, thereby rendering himself all the more useful to his government when it called him to the position of Director of Naval Construction.

In connection with the history of White's career, the author treats interestingly of the problems progressively confronting the designers as the perfection of their art increased; of the various arrangements of armor, armament, and the like, proposed and adopted and of the controversies raging, at times, around these questions. Quotations from White's letters and papers and excerpts from contemporary documents deal at length with such matters, and furnish also, informing details regarding the technical difficulties encountered and the reasons for the adoption of various solutions.

To the naval architect the book is of particular interest. To the naval officer in general it offers an interesting outline of the development of his ship, with occasional excursions to the realm of organization and administration; for one of White's most notable achievements was the reorganization of the dockyards, both internally, and in their relationship to the admiralty.

The book is not light reading. R. N. S. B.

SECRETARY'S NOTES

Membership

Present Membership: 4,322. Changes since last report: New Members, 26. Resignations, 3. Deaths, 5. Total Increase, 18.

Membership and Subscriptions

There has been a certain amount of misunderstanding in some quarters regarding the change in subscription rates to the PROCEEDINGS, a notice of which has been published in these notes for a number of months. Membership in the Naval Institute, as heretofore, includes a subscription to the PROCEEDINGS, and the cost of membership (membership dues) remains unchanged. Regular membership is available only to officers of the Navy, Marine Corps, and civilian officers attached to the naval service. Associate membership is available only to officers in allied military services, or to persons in civilian life who are interested in "the advancement of professional, literary and scientific knowledge of the Navy," and only after application and election as such. Membership is entirely personal, and continues until resignation in writing has been received.

Subscription is available to any organization or person and is automatically discontinued at expiration. The subscription rate is $5.00 per year.

The special subscription rate of $3.50 per year is available only to members who wish to send gift subscriptions to their relatives or friends, in order to acquaint them with naval life and conditions. It is not available to societies, subscriptions for which must be at the regular rate.

1924 Dues

Dues for 1924 were payable on January 1. Bills this year were sent out in December, enabling those who desired to resign to do so as of the first of the year, thus saving the sending of additional bills for one or two months of the new year. All who have not already paid the current dues are urged to do so promptly, as the clerical work involved in sending out repeated bills is very great.

Visiting the Institute

Many members of the Naval Institute will be in Annapolis on May 31 to attend the Army and Navy baseball game, and to be present at the dinner of the Naval Academy Graduates' Association the same evening. All members are invited to visit the Naval Institute while in Annapolis. The offices of the Institute are on the ground floor of Mahan Hall, and will be open up to 2 P. M., on that day.

New Books

It is not always that a book prepared as a text-book is of value to the service at large. There are, however, instances where books are of as great value to officers in active service as to the midshipmen for whom they are prepared. There are now just off the press three books each of which seems to fulfil that characteristic, and to have particular value to the officer who is preparing for his examination for promotion. These books are: "Leadership," $1.65; "International Law," $2.00, and "Notes on Naval Communications," $1.30, postage prepaid. Those interested should make application without delay, as the editions are not large, and will, in all probability, soon be exhausted.

Articles

The Institute desires articles of interest to all branches of the service, including the reserve force. Non-members as well as members may submit articles, and authors receive due compensation for articles published. Compact, well digested articles are more likely to be accepted for early publication. In accepting articles for publication, the Institute reserves the right to have such articles revised or rearranged, where necessary, in order to bring them up to the required standard of articles published in the PROCEEDINGS—the cost, if any, to be deducted from the compensation due the author.

Reprints of Articles

Twenty copies of reprints are furnished authors free of charge. Additional copies to the number desired will be furnished at author's expense, provided request is made before going to press.

Discussions

Discussion of articles published in the PROCEEDINGS is cordially invited. Discussions accepted for publication are paid for at approximately one-half the rate for original articles.

Book Reviews As soon as practicable after the publication of books on subjects of professional interest, the Institute aims to publish authoritative reviews of them.

Address of Members In the past, many errors have resulted from the habit of changing an officer's address as soon as his transfer orders are published in the papers. No change will be made in the future except upon receipt of the Navy Directory, or notification by the member concerned. Reliance upon the former method may, in extreme cases, mean a delay of almost four months.

To insure the prompt delivery of the PROCEEDINGS and other communications from the U. S. Naval Institute, it is essential that members and subscribers *notify the Secretary and Treasurer without delay of every change of address.* No responsibility can be accepted for failure to receive the PROCEEDINGS, where members fail to comply with this rule. Changes of address should reach the Institute by the 25th of the month, to be effective for the issue of the PROCEEDINGS of the following month.

Coupons for Applications For the convenience of members making application for membership or for subscription, or informing the Institute of changes of address, a number of blank forms will be found elsewhere in this issue. It is hoped that members will take full advantage of these in order to reduce clerical work of all concerned.

H. G. S. WALLACE,
Commander, U. S. Navy, Secretary and Treasurer.